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ANNALS OF MEDICAL HISTORY

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ANNALS OF MEDICAL HISTORY



VOLUME III

SPRING 1921

NUMBER 1

THE COLLECTION OF THE BOSTON PHRENOLOGICAL SOCIETY—A RETROSPECT

By J. COLLINS WARREN, M.D.

BOSTON, MASS.



THE formidable array of plaster casts of the heads of all sorts and conditions of men which decorated the railing surrounding the gallery of the Anatomical Museum is one of my earliest recollections of the Harvard Medical School in its old home at the head of North Grove Street near the Massachusetts General Hospital. Here was a frieze of startling, realistic appearance depicting all the vagaries of Nature's human offspring. The busts of the intellectual Cicero and Cæsar and the death mask of the great Napoleon stood literally cheek by jowl with those of degenerates and celebrated criminals. It was not a haphazard collection of material but a series of casts of the heads of well-known individuals carefully selected and duly catalogued by the Boston Phrenological Society many years before.

Few of its specimens are to be found on exhibition on the shelves of the Museum

today, and the theories which it was intended to illustrate have long since been set aside in the advance of our knowledge of anatomy and physiology.

Yet the work of Gall and of his pupil Spurzheim, over a century ago, exerted a strong influence upon the researches of the period—a period of rapid advance in medical science—and left a mark behind which time has not succeeded in obliterating.

It is partly for the purpose of preserving one of the old traditions of the Harvard Medical School and for reviewing an almost forgotten medical theory that this brief account of the history of the collection and its relation to the Medical School has been prepared.

John Gaspar Spurzheim was born December 31, 1776, at Longvick, Germany, near the city of Treves on the Moselle river. He was educated at the University of Treves and when in 1799 that part of Germany was invaded by the French he went to Vienna to study medicine. Here he came in contact with one with whom his name was destined

to be perpetually associated. Dr. F. J. Gall¹ had graduated from the medical department of the University in 1785. A pioneer in the study of the anatomy and physiology of the brain, he was, at the time of his pupil's arrival in Vienna, promulgating his theory of the seats of the intellectual faculties in the brain in which he had established a list of twenty different localities. His lectures, based as they had been on anatomical study and extensive clinical experience in hospitals and asylums, had aroused great interest, not only in the medical world, but among the laity at large also.

It must be remembered that at that period the time-honoured views of the classical authors had placed the soul or the "sentient zone" in the heart and the stomach as well as in the pineal gland and the cerebellum. His radical views caused a great sensation at the time and, regarded as dangerous to religion, led finally to Gall's departure from Vienna in 1805. Spurzheim, as a faithful disciple would, accompanied the master to expound the new doctrine to the world.

There seems to be little doubt that Gall, and Spurzheim also, were good anatomists and had made a careful study of the structure of the brain and had obtained an insight into the distribution of nerve fibres to the different regions which was distinctly in advance of the time.

Studying at the same time the mental peculiarities of individuals, both normal and insane, Gall sought to harmonize the physiology of the brain with its anatomical structure. He gradually came to the conclusion that the external peculiarities of the head corresponded more or less accurately with intellectual endowments and moral qualities. Also that the seat of these various functions of the brain being mapped out, a means was thus obtained of determining

those qualities which go to make up the character of an individual by the impress which the development of the different organs of the brain had left upon its outer covering. Considering the state of knowledge at that time it is not surprising that the work of a pioneer should have confused what we now describe as "cerebral localization" with the science of psychology.

Inspired nevertheless with great confidence in the correctness of their theories these two observers started out to convince a sceptical world and planned a lecture tour through continental Europe, finally reaching Paris where Gall established himself as a practitioner.

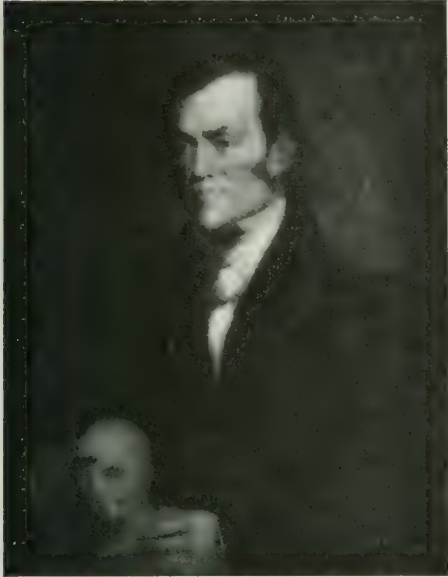
Like two philosophers of an earlier age they travelled from place to place preaching their doctrine and obtaining the wherewithal for future labours by courses of lectures which doubtless served as a basis for extensive clinical study and practice.

Dr. Spurzheim, after remaining in Paris several years with his chief, subsequently extended the field of his labours to Great Britain. Here he became, in London and Edinburgh and Dublin, the central point of a heated controversy, Dr. John Gordon of Edinburgh being one of the prominent opponents of his views and Drs. George and Andrew Combe his enthusiastic supporters. Failing to obtain promotion in England to professorial honours he returned to Paris with the intention of remaining there permanently with his French wife. But he also failed to obtain scientific support there and following her death, he yielded to pressing invitations from America to cross the Atlantic. In 1832 he sailed for the United States, arriving in New York August 4, 1832. According to the Hon. Nahum Capen² his literary representative and friend, his career began under favourable

¹ Born at Baden in 1758; died in Montrouge, near Paris, in 1838.

² Nahum Capen was born at Canton, Massachusetts, April 1, 1804. Postmaster of Boston 1857-1861; publisher (Marsh, Capen & Lyons); died in Boston January 4, 1886.

auspices and attracted the attention of prominent citizens in the various towns and cities he visited. But it was destined to be a short one, for he fell ill and died of what appears to have been typhoid fever, in Boston, November 10, 1832. He lies buried at Mt. Auburn, almost the first occupant of that cemetery which had



Portrait of SPURZHEIM by Alvan Fisher.
(Harvard Medical School.)

recently been founded by some of Boston's most prominent physicians.

At the time of his arrival in this country, the work of Gall and Spurzheim was familiar to all the scientists of the day and their fame survived another generation, for I well remember the frequent quotations of the writings of these worthies in the lectures and literature of my student days, and two quarto volumes in my possession testify to a quality of work well up to, if not in advance of, the standards of the period.³

³ Gall, F. J., et Spurzheim, G.: *Anatomie et physiologie du system nerveux en général et du cerveau en particulier*. Paris, 1810 (2 vol., numerous plates).

The science of phrenology as expounded by them had met with much opposition but it also had many enthusiastic supporters and the value of much of their scientific work was generally recognized. Spurzheim was moreover a man of attractive personality, if we may judge from his portrait by Fisher, and there is ample testimony to his engaging manners and unassuming demeanor.

He was received with much enthusiasm by many of the advanced thinkers of the day whose names were so prominent a feature of New England life of that period.⁴ The medical profession appears to have been courteous and open-minded but cautious in its endorsement of the new doctrine of phrenology. This feature of the work of Gall and Spurzheim seems to have thrown into obscurity much of the painstaking and scientific labour of these observers, which really entitles them to a place among the pioneers in research which led up to the modern conceptions of the functions of the brain.

⁴ In a letter dated November 16, 1832, from Nathaniel I. Bowditch to his brother Dr. Henry I. Bowditch, then a medical student in Paris, some account is given of the death and funeral of Spurzheim. Among those who attended a meeting at his residence to make arrangements for the funeral were Hon. Josiah Quincy, president of Harvard College and the president of the American Academy.

Nathaniel Bowditch, the writer of this letter, says: "Every one of us feels a pride and pleasure to be able to express in any way his regard and esteem for the deceased and his regret for his sudden and melancholy death. But a few months since Dr. S. came among us a stranger known only by reputation, yet in this short interval he made more cordial friends than many could have done in a whole life. The course of lectures in Boston was attended by a more brilliant and select company than ever before listened here to any other lecturer upon any subject whatever—without perhaps in any instance inspiring a full belief in his favorite theory he was admitted to possess remarkable talents for lecturing. The acute and accurate observation of nature, his philanthropy and his moral philosophy were admired by all."

(Publication of the Colonial Society, x, 77-)
(Communication of Mr. H. H. Edes.)

Spurzheim's short period of activity in America left him little more than an opportunity for an introduction to the medical profession in this country but his fame had gone before him and his faithful adherents, of whom Mr. Nahum Capen, publisher and publicist, was a conspicuous member, united to found the Phrenological Society with a view to promoting the new doctrines.

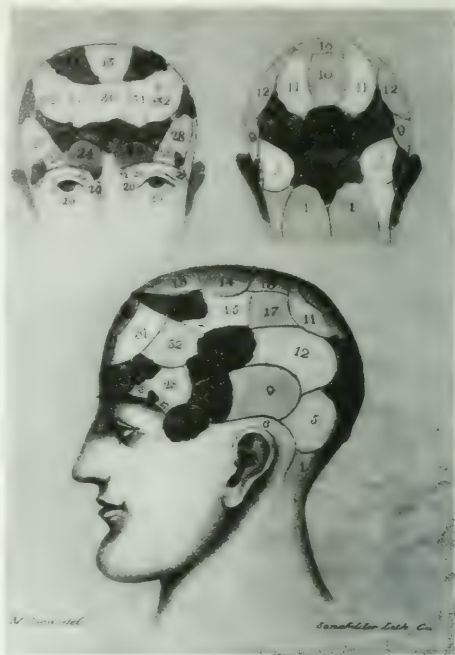
The Boston Phrenological Society was founded on the evening of the 17th of November, 1832, the day of Spurzheim's funeral. A meeting was held for this purpose in the building of Marsh, Capen and Lyons, at which the Rev. Dr. Tuckerman presided and Nahum Capen was chosen secretary. The first officers of the society elected December 31, 1832, were the following: Rev. John Pierpont, president; Dr. Jona Barber, vice president; Dr. Samuel G. Howe, corresponding secretary; Nahum Capen, recording secretary; S. P. Clark, treasurer.

The society continued in activity for about ten years and numbered one hundred and forty-four members. During its period of existence the society duly observed the birthday of Spurzheim, the day of its anniversary, by suitable services. On these occasions formal addresses were given by prominent citizens, among whom may be mentioned Dr. Samuel G. Howe, who seems to have taken a prominent part in the work of the society. During this period George Combe of Edinburgh visited this country and gave lectures in New York, Philadelphia and Boston on the science of phrenology. A piece of silver plate was duly presented to him by friends of the society.

The society continued in active operation until the year 1842. The novelty of the new science was then wearing away. Other topics of interest were coming forward and occupying a prominent place and as Mr. Capen suggestively puts it, "In a society of nearly one hundred and fifty members there will

always be some who injure the cause of scientific investigation by their weakness, their want of sense, and by their tedious dissertations upon subjects they do not understand."⁵

But although the society ceased to exist and the ridicule which had been heaped upon its teaching, so far as the location of



Localization of the Organs of Feeling and Intellect.

(From a publication which was probably issued by the Phrenological Society.)

the different functions of the brain was concerned, had become a tradition, we find as late as 1879, a paper on the brain by the Hon. George H. Calvert of Newport, R. I., in which the following significant statement was made—"From the discoveries of Gall legitimate deductions are that the brain is the instrument of the mind: that the brain is not a single organ but a congeries of organs, the function of each being to

⁵ Capen, Nahum, J.L.D.: *Reminiscences of Dr. Spurzheim*. New York, 1881.

manifest a primitive mental power of feeling or of intellect, etc.”

A little volume of the society lies before me, the title page of which is as follows: “A Catalogue of Phrenological Specimens belonging to the Boston Phrenological Society. Boston. Printed by John Ford 1835.” It contains a list of 416 specimens or casts. A selection of one or two samples will serve to illustrate the character of the work attempted by the society. The list opens with No. 1, Dr. J. F. Gall, No. 2, G. Spurzheim, No. 6, Napoleon Bonaparte, No. 10, William Pitt, etc., all without special designation. Further on under “*Amativeness*”⁶ we find

“No. 150, Amative Fortune Teller who deceived almost all the nobility of Vienna. She kept two gentlemen. Cerebellum very large.” “*Inhabitiveness*. A. R. W., a lady, who feels pleasure in contemplating a certainty of her remaining at home; large inhabitiveness No. 280.” Contrasting with the above is: “No. 290, Irish Traveler celebrated for his great desire to visit foreign countries. He spends no time in any place which he visits but merely passes through them. Organ of Locality very large.”

Under the title “*Sculls or Casts of Sculls*”⁷ (sic) we find “No. 341, the Austrian General Wurmser. He commanded the Austrian

⁶ The Faculties are divided into two orders; viz. Order of Feelings and Order of Intellect.

ORDER OF FEELINGS

I. Genus. Propensities: *having the organs of*

1. Amativeness, or physical love.
2. Philoprogenitiveness, or love of offspring.
3. Inhabitiveness—in animals the disposition to determine the place of dwelling—in man love of country.
4. Adhesiveness, or disposition to form attachments.
5. Combativeness, or disposition to quarrel and fight.
6. Destructiveness, or disposition to destroy.
7. Constructiveness, or disposition to build, etc.
8. Acquisitiveness, or disposition to obtain or acquire.
9. Secretiveness, or disposition to conceal.

II. Genus. Sentiments: *having the organs of*

10. Self-esteem, or self-love.
11. Love of approbation, or desire of applause.
12. Cautiousness, or circumspection.
13. Benevolence, or kind affection.
14. Veneration, or tendency to adore.
15. Hope, or inclination to expect and believe.
16. Ideality, or poetic and enthusiastic tendency.
17. Consciousness, or sense of justice and duty.
18. Firmness, or resoluteness of character, etc.

ORDER OF INTELLECT

I. Genus. Knowing Faculties: *having the organs of*

19. Individuality, or faculty of knowing external objects.

20. Form, the power of considering forms.

21. Size, faculty of contemplating size.

22. Weight and momenta, etc.; faculty by which ideas of weight, etc., are acquired.

23. Colouring, faculty of perceiving the harmony and relation of colours.

24. Locality, faculty of contemplating places, situations, space etc.

25. Order, faculty of conceiving order, method, etc.

26. Time, faculty of attending to the succession of events; duration.

27. Number, faculty of calculating, etc.

28. Tune, faculty of perceiving melody in sounds; musical genius depends on it.

29. Language, faculty of acquiring and using arbitrary signs.

II. Genus: Reflecting Faculties: *having the organs of*

30. Comparison, faculty of finding resemblances, using examples, etc.

31. Causality, faculty of examining causes and relations; metaphysical genius.

32. Wit, faculty of the ludicrous in general; gaiety.

33. Imagination, faculty of copying or mimicking the actions, manners, etc. of others.

Addenda—Wonder, or feeling of the marvellous.

NOTES.—No. 21 and 22, conjectured to be situated near No. 20, Form, in the internal angle of the orbit of the eye. Language, No. 29, seated about the middle of the orbit so as when considerable to give prominence to the eyes.

⁷A catalogue of Phrenological Specimens. Belonging to the Boston Phrenological Society Boston, 1835.

Army in Italy and was defeated by General Bonaparte. He was endowed with prodigious courage. This and attachment to his friends formed prominent traits in his character. The organs of Combativeness and Adhesiveness are remarkably large and Cautiousness small."

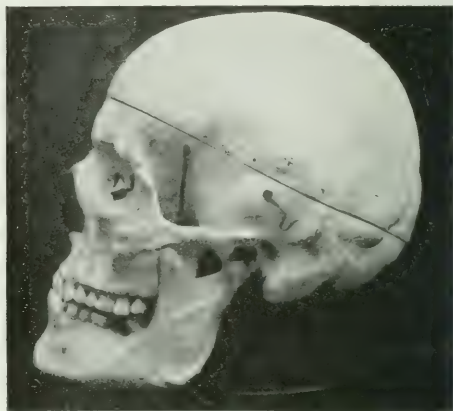
"No. 342, Timid Female. Dr. Spurzheim used to show this in contrast with that of Wurmser. The organ of Combativeness being small and Cautiousness largely developed."

"No. 416, Dr. Benjamin Rush. Intellectual organs and love of approbation very large. See report on file."

The most notable specimens of the Society's collection were the skull and heart and brain of Spurzheim which had been placed in the fireproof building of the Mastodon Museum.⁸ The skull of Dr. Robertson was another notable specimen: A Scotch physician, he was an old resident of Paris and was President of the Anthropological Society, an institution founded by Spurzheim. Mr. Capen in his "Reminiscences" described a meeting with Dr. Robertson in Paris and recalls the fact that this devoted friend left in his will directions that his collection and his skull should be presented to the Phrenological Society and should be placed forever by the side of the skull of his master.

When the Medical Faculty moved from the old building into its new quarters on Boylston Street in 1880, this collection of casts was left behind and remained for many years stored in the basement. After the Dental Faculty, which had occupied the building in its turn moved away to its new quarters on Longwood Avenue, the old school building remained empty for a while and was then pulled down to make way for the new administrative entrance to the Massachusetts General Hospital. When the workmen were beginning the process of

demolition the warning voice of Dr. R. H. Fitz called the writer's attention to the danger of the destruction of this collection. Steps were immediately taken to transfer what had been left to their present quarters in the Administrative Building of the Harvard Medical School where they now



Skull of SPURZHEIM.
(Warren Anatomical Museum.)

lie safe from injury and awaiting some new prophet to bring about their resurrection.

Meanwhile the skulls of Spurzheim and Robertson lie side by side as they would have wished in the Warren Anatomical Museum. The skull of Dr. Spurzheim has been described by Dr. Nathaniel B. Shurtleff, by whom it was prepared for the craniology collection of the Museum. It is conspicuous, with its ideal facial angle as an example of a highly cultivated and intellectual type. The virile and salient outlines of the skull of his friend make it a fitting companion.

In this connection it may be appropriate to say a word about the devoted adherent and admirer, Mr. Nahum Capen. Personally I had but one interview with him shortly before his death many years ago and found him keenly, almost aggressively, interested in the future of the Phrenological Society's collection and the final disposition of Spurzheim's skull. The Faculty was at the time

⁸ Chestnut Street ("The Warren Museum of Natural History".)

moving into the new building on Boylston Street and I was able to assure him that the skull had been transferred to better quarters and was placed beside that of Dr. Robertson. I could see from his demeanour and earnestness that this had been to him a lifelong duty and I was duly impressed with the spirit of a veteran of an old-time campaign which had been waged fearlessly against a worldwide group of opponents. On this occasion Mr. Capen left with me a copy of his "Reminiscences" (1881) which, with a biography of Spurzheim, dated 1833, belonging to Dr. J. Mason Warren, furnish many valuable and interesting details of his hero's history.

In delving among some old family manuscripts recently I came across the correspondence relative to the sale of the collection of the society and their purchase for the Harvard Medical School. Under date of September 11, 1832, is a communication from a committee consisting of Winslow Lewis, Jr., J. Greely Stevenson and J. D. Fisher asking permission to use the Anatomical Theatre for a course of four lectures by Dr. Spurzheim on the anatomy of the brain. On October 26, 1832, an anxious inquiry from Nahum Capen refers to a report that the theory of Dr. Spurzheim including his anatomy of the brain was regarded by him, Dr. Warren, as a complete system of quackery and unworthy of the attention and study of intelligent men. There is no copy of a reply to this query but on November 11 following Spurzheim's illness and death we find a communication from "the friends of the late Dr. Spurzheim" appointing Dr. Warren chairman of a committee consisting of Drs. Warren, Jackson, Shattuck, Channing, Parkman, Ware, Reynolds, Robbins, Lewis, Stevenson, Fisher, Grigg, and Howe to administer the examination and embalming of the corpse and the taking of a cast of the head. Also a request on November 13 from Mayor Quincy to this committee

to take charge of the funeral services in the Old South Church and "to accompany the body from the church to its final deposit accompanied by such other citizens as may choose to attend."

It seems quite clear from this correspondence that Dr. Spurzheim at the time of his death was regarded with respect by the leading members of the profession of the city of Boston and that opportunity had been given him to expound his new theories in regard to the anatomy and function of the brain. In the succeeding years it is evident that Dr. Warren used many of the preparations of the Phrenological Society in his lectures and that a large



Skull of SPURZHEIM's friend DR. ROBERTON, who left direction in his will that his skull be presented to the Phrenological Society and placed forever by the side of that of his master.

(Warren Anatomical Museum.)

number of skulls and casts were loaned to him by the society for this purpose.

During this period phrenology was received by the medical world with much scepticism, its followers and opponents being divided into two camps. It is evident that the whole subject attracted great interest and there are letters showing a widespread participation in the discussions of its merits. Of Dr. Warren's views we gain an insight from his biographical notes.⁹

⁹ Warren, E.: *Life of John Collins Warren*. Boston, 1860, ii, 10.

At the time I was in Paris in the years 1801 and 1802 the new system of craniognomy, as it was called, attracted some attention. Gall of Vienna was the founder of this doctrine: but at the time I mention he did not excite great attention in Paris. Soon after, however, Gall endeavoured to place the phrenological system on scientific foundations and presented his claims of improvement to the Institute by whom a commission was appointed to investigate the subject.

The head of this commission was Cuvier who, instead of throwing ridicule upon the matter, went into a thorough investigation of the claims of Gall and laid a report before the Institute.

For many years after this Dr. Warren devoted himself to a study of the structure of the brain as laid down by Gall with the corrections of Cuvier.

Some years ago Dr. Spurzheim, the coadjutor of Gall, brought me letters from friends in France and I endeavoured to show him all the attention due to a scientific stranger. He examined all my crania. He gave four or five lectures at the Medical College and afterwards gave a course of lectures on phrenology to a promiscuous assembly of ladies and gentlemen.

Spurzheim's career in Boston was unfortunately but too brief and in a few weeks was brought to a close as we have seen by typhoid fever. Dr. Warren goes on to say:

His body being carried to the Medical College I made a public examination of it in the presence of a crowded theatre and preceded the demonstration part of the discourse by an account of the investigations and improvements and other labors of this distinguished and philanthropic gentleman. In consequence of the lectures of Dr. Spurzheim a Phrenological Society was constituted.

As we have seen the decline of interest in the work of the society led to its subsequent dissolution and the purchase of its collection by Dr. Warren in 1847. The correspondence referred to above gives some interesting details of this transaction. The

transfer took place in 1849 and the collection, consisting of more than five hundred and fifty articles, was removed to the "Mastodon Rooms" on Chestnut Street where a fireproof building preserved the skeleton of the Mastodon, the Zeuglodon and many other interesting and valuable contributions to natural history. Here the collection found a temporary home while the transfer to the new building of the Medical School in North Grove Street was arranged.

In view of the controversy in regard to the so-called science of phrenology waged at that period, it is interesting to note Dr. Warren's view of the subject. Writing in 1847 he says:¹⁰

The importance of phrenology is derived, according to my view, from the fact that it leads to the development of the anatomy and physiology of the nervous system: and also the study of the forms of the crania enable us in some measure to understand the degree of intellectual power possessed by individuals.

Referring to a visit of Dr. Combe of Edinburgh and his brother, Mr. Combe, to this country, he states:

These gentlemen dined at my house and Mr. Combe afterwards lectured on the subject of phrenology in various parts of the country. I never attended his lectures for I found that in all of the phrenological courses which I attended the principal object of phrenological lectures was not to expose the ground and basis of phrenology but to interweave it with popular and interesting topics. However judicious this might be it was of course not calculated to give me the information I desired.

At the time of the transfer of the collection from the Phrenological Society to the Medical School it appears to have been stored in the Institution for the Blind at South Boston under the charge of Dr. Samuel G. Howe. The following papers

¹⁰ *Life of J. C. Warren*, ii, 13.

give some interesting details as to the change of ownership effected at that time.

Boston, June 25, '49.

Dr. J. C. Warren.

Dear Sir:

You made a proposition last year to take the cabinet at the Boston Phrenological Society. Some difficulties which then existed to the acceptance of your proposition are now removed: I should be pleased to know whether you are now disposed to take the cabinet upon the terms then proposed.

Very truly yours,
(Signed) S. G. HOWE.

Boston, June 27, '49.

Dear Sir:

The debt of the Phrenological Society is only about \$125. The cabinet was stowed away in an attic chamber many years ago. It is I presume in a tolerably good state of preservation though I have not examined it. I hardly know how to find a catalogue. According to the best of my recollection there are about 25 skulls (of which Dr. Spurzheim's is one) and between three and four hundred casts.

The cabinet could be easily sold to some of the soi-disant phrenologists who peddle their wares about the country for more than the sum named above, but the Society is not disposed to sell it. Whoever takes it however will probably hold possession, for the Society has been so long dormant that it is not likely ever to revive.

Very truly yours,
(Signed) S. G. HOWE.

Boston, September, 1849.

It is hereby agreed between S. G. Howe and Samuel Downen, Jr., representing the Boston Phrenological Society on the first part, and Dr. J. C. Warren on the second part, that the cabinet and collection of the said Society shall be given into the possession of said J. C. Warren, in trust, for the said Society upon the following terms: viz., said J. C. Warren shall pay one hundred and fifty dollars into the hands of the Treasurer of the Society.

He shall agree to preserve the cabinet and collection and let it be accessible at reasonable times to the members of the Society.

He shall agree to deliver back the cabinet and collection, in good condition, to the Society or its agents if it should be called for at any time within five years from this date: six months' notice being given to him and the sum of one hundred and fifty dollars repaid to him.

Boston, Feb. 4th, 1850.

I hereby acknowledge to have received from the Boston Phrenological Society, through the hands of Dr. S. G. Howe, the cranium and brain of the late Dr. Spurzheim and the cranium of the late Dr. Robertson, as a part of the collection of said Society lately received by me: and I do agree to return the said crania of Drs. Spurzheim and Robertson and brain of Dr. Spurzheim, but not the rest of the collection, which is subject to different conditions, whenever the said crania and brain shall be applied for and reclaimed by the authority of the said Phrenological Society. (J. C. W.)

A letter from Dr. Winslow Lewis dated June 5, 1850, and addressed to his venerated friend and preceptor gives interesting information regarding the final transfer of the relics of Spurzheim. It opens thus: "I send you the heart of Spurzheim: it has been in my possession since his death." It will be remembered that Dr. Lewis assisted at the autopsy of Spurzheim. That the collection was considered a valuable addition to the Museum of the Medical School may be inferred by the following letter from Dr. Oliver Wendell Holmes. It would be interesting to know what was the attitude of the young professor of anatomy to the new science as embodied in a lecture given by him at that time.

8 Montgomery Place, Feb. 28th, 1850

My dear Sir,

Tomorrow (Friday) at my usual hour (1 o'clock) I shall give a lecture to the class upon the subject of phrenology. I mention it in compliance with a suggestion of your own, but by no means to do more than assure you that I shall be happy to see you if convenient, and

ask no reason for your absence if otherwise. I can truly say that the limited time and attention, which the hurry so apt to attend the close of lectures has allowed me, render it very difficult in approaching the subject at all, and especially so in the presence of one who, however lenient in his judgment, could hardly avoid seeing the imperfections which must attend my brief glance at the subject.

I am, my dear Sir,

Yours very respectfully,
(Signed) O. W. HOLMES.

And so it came about that the collection of the Phrenological Society found a resting place within the walls of the newly erected building of the Harvard Medical School on North Grove Street (1846). We have seen that a post mortem examination was made at the Medical School and that Drs. Nathaniel B. Shurtleff and Winslow Lewis were the assistants of Dr. Warren on that occasion, and also that a year or two later the heart of Spurzheim was presented to Dr. Warren by Dr. Lewis and probably also the skull which was especially prepared by Dr. Shurtleff. Be that as it may it is evident that at the time it was not deemed appropriate to mingle these relics of a distinguished scientist with the somewhat miscellaneous collection of the Phrenological Society, and they were eventually placed for safe keeping in the private collection of Dr. Warren on Chestnut Street.

After the death of Dr. John C. Warren this collection was placed in the care of his son, Dr. J. Mason Warren, and from him the present writer heard many interesting statements about Spurzheim's career. Dr. Mason Warren, while a student in Europe, had already had his attention called to the new science of phrenology. Under date of Paris, December 17, 1832, he wrote to his father:

In your last letter you mention the death of the much admired Spurzheim. Just after its receipt I was buying for you a finely marked

Caucasian head phrenologically mapped out. When I spoke of the sad event to the shopkeeper, at first he would not believe me; but when I gave him the particulars he could scarcely keep from crying and said, "C'est une tres grande perte." The next day he came up to Bowditch with the secretary of the Phrenological Society in order to learn further details which Bowditch had received from his brother.

During Dr. Mason Warren's period of service as curator of the Mastodon Collection the relics of Spurzheim occupied a prominent place in the collection. To them was added a portrait by Fisher, purchased by Dr. Warren and finally hung on the walls of the Museum.

In following up the Spurzheim correspondence, we find it continued at periods up to almost the day of Dr. Mason Warren's death in 1867. The loyal friend, Mr. Nahum Capen, did not lose sight of these memorials. Among the papers referred to, I find the copy of an elaborate statement of the facts concerning Spurzheim's arrival in this country, his death and burial at Mount Auburn prepared by him and with the endorsement evidently of Dr. Warren placed among the records of the cemetery.

A monument erected to the memory of Spurzheim through the liberality of a prominent citizen of Boston, the Hon. William Sturgis, marks the site of his grave. It stands near the main entrance, a classic pile with the simple inscription: Spurzheim.

His heart, brain and skull, after remaining many years in the Mastodon Museum, were bequeathed by Dr. Mason Warren to the Harvard Medical School. The subsequent history of the Phrenological Society collection is comprised in that of the Medical School.

In the Warren Museum of Anatomy which, during the period referred to in this account, has occupied three separate domiciles, may be found the final resting place of the skulls of Spurzheim and Robertson.

In a gallery of the School near by hangs the distinguished portrait of Spurzheim by Fisher.¹¹

As the changing fortunes of scientific theories and research vary from time to time, it is not beyond the bounds of possibility that the hidden portion of the old collection may return to occupy a more conspicuous position and rejoin the standard bearers. The skulls are, at all events for

¹¹ Alvan Fisher, born at Needham, Massachusetts, August 9, 1792, died in Dedham, Massachusetts, February 14, 1863. "He produced many satisfactory and graceful likenesses: that of the lamented Spurzheim, taken partly from recollection, immediately after his death in Boston, was highly valued." (Henry T. Tuckerman in "Book of Articles"). The portrait was purchased by Dr. J. Mason Warren in March, 1863.

the time being, in safe and reverent hands, memorials of an interesting episode in the scientific awakening of medicine of the nineteenth century.¹²

¹² Since writing this article I find in the *London Spectator* for December 13, 1919, reference to a complimentary dinner given to Dr. Maria Montessori, at which Sir James Chrichton-Browne, after referring to such authorities as Plato, Rousseau, Pestalozzi, Lancaster, Fröbel and Herbert Spencer as the forerunners of the wonderful scheme of juvenile polity, added that he would put in a claim for a body of men whose services to educational progress had been too much ignored, the phrenologists. "The phrenologists were wrong, but they were the first to insist a hundred years ago on localization of function in the brain and on the serial exercise in the young of the separate sensory motor and mental powers."

SALICETO ON RENAL DROPSY

(Deduritie in renibus)

This disease either begins insidiously after an inflammation, or comes of itself. Signs: Decrease of urine, heaviness and slight pain in the region of the spine and kidneys, followed by dropsy. Treatment (various poultices and inunctions, the composition of which need not detain us): Let him drink twice daily before dinner and supper oxymel and barley-water, or de-

coction of mallow seeds with honey, which is better. He should take as a purge once a week a decoction of rhubarb, etc. His diet should be regulated as in the chapter on inflammation of the kidneys (i.e., chiefly milk flavoured with honey or sugar, with rice and oatmeal cooked in milk of almonds or goat's milk).—Withington's translation of "Liber in scientia medicinali," 1476, ch. 140.

AN ANCIENT EGYPTIAN MEDICAL PRESCRIPTION FOR HYSTERIA

By ISADOR H. CORIAT, M.D.

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IN the "Daily Life Room" of the ancient Egyptians, at the Metropolitan Museum of Art in New York, there is an irregular piece of limestone measuring about 7 centimeters by 6 centimeters, on which is written upon both sides, one of the oldest prescriptions known in the history of medicine. The limestone specimen is termed an "ostrakon," which seems to have been a cheap substitute for papyrus. This inscription is in hieratic, a curious form of writing used chiefly on sacred and medical papyri and on wooden coffins. Concerning these ostraca, Maspero states in "Egyptian Art," that the Egyptian artists often used fragments of limestone for their preliminary studies and sketches.

A few years ago the *Journal of the American Medical Association* called attention to this ostrakon in an editorial entitled "The Oldest Prescription in America" without, however, furnishing a translation other than to state that the prescription seemed to be a copy and its ingredients were mainly precious stones to be ground up and used for fumigation. The editorial goes on to state, "Professor von Oefele, an authority on ancient Egyptian medicine, suspects the case was one of hysteria, though there is no indication of this on the prescription itself. Ground precious stones were favorite remedies for hysterical manifestations. They were used for fumigation whenever the ball in the throat (our globus hystericus) was a prominent symptom. This was supposed to be due to a crowding of the organs by a dislocation of the uterus upward."

This prescription dates from about 1500 B. C. or about one hundred years later than

the date of that most important of medical papyri known as the Ebers Papyrus, which is one of the oldest systematic medical compilations in the world. This fixation of the date of the prescription on the ostrakon is important in the light of the statement of Prof. W. Max Müller of Philadelphia, who has contributed a short paper on the subject.¹ He states—"The ostrakon is evidently a mere writing exercise. The writing exercise began with a coherent prescription taken from some medical book. It is difficult to determine the nature of that prescription. I noticed that lapis-lazuli appears in Ebers' (papyrus) exclusively in prescriptions for the eye."

According to this statement, the prescription seems to be a copy. Prof. Müller's translation of one side of the ostrakon is as follows:

Lapis-Lazuli	Two particles
Green stone	Two particles
Ki-bu (for fumigating)	One (particle)
Ssy (plant from Kosi)	One (particle)
Raisin (Nubian kind?)	One (particle)
Wine	One Kobe (jug)

Buck in "Growth of Medicine," referring to the medicine of ancient Egypt, states, "The prescriptions were written in very much the same manner as those of today, that is, they contained the fundamental or important drugs, certain accessory materials, and something which was intended to correct the unpleasant taste of the mixture. Egypt exerted a powerful influence in the beginnings of medicine in Greece and upon Jewish medicine."

An analysis of the prescription shows

¹ *Recueil de Travaux*, xxii, 1900, 103-105.

that the important ingredients consisted mainly of precious stones to be used either for fumigation or internal administration. Ground precious stones were familiar remedies among ancient Egyptians for hysterical manifestations and were employed in the treatment of globus hystericus. The internal evidence also shows that the prescription was to be used for fumigating. The raisins may have been added for flavoring purposes. The "jug of wine" has a familiar sound, as the virtue of many modern patent medicines seemed in the past to depend upon their alcoholic content. Von Klein states² "Medicines are directed to be administered internally in the form of decoctions, infusions, injections, pills, tablets, troches, capsules, powders, potions and inhalations, and externally, as lotions, ointments, plasters, etc. They are to be eaten, drunk, masticated or swallowed, to be taken often, once only—often for many days—and the time is occasionally designated—to be taken mornings, evenings, or at bed time. Formulas to disguise bad-tasting medicaments are also given." This particular prescription for hysteria, resembles therefore, the usual features of Egyptian medicine.

The use of precious stones in the treatment of nervous and mental diseases seems to have followed the course of medicine down the centuries. A portion of Johannis de Cuba's "Hortus Sanitatis," published in 1491, is devoted to the use of precious stones in medicine, one of its quaintly illustrated pages showing a teacher in a doctor's gown instructing a pupil in the use of precious stones, and below it, are depicted customers buying these precious stones in a lapidary-apothecary's shop. With an added characteristic touch of humour, Chaucer has a similar reference in his description of the Doctour of Phisyk, in the Prologue to the Canterbury Tales—

² The Medical Features of the Papyrus Ebers, *J. A. M. Ass.*, xliv, No. 26.

For gold in phisik is a cordial,
Therefore he lovede golde in special.

In that marvelous compendium of seventeenth century psychiatry by Robert Burton, known as "The Anatomy of Melancholy," precious stones are frequently mentioned as methods of treatment for "phantastick illusions which proceed from melancholy" while lapis-lazuli is stated to be of such virtue, that all melancholy passions might be cured by it. As "melancholy" is popularly termed the "blues," the therapeutic use of lapis-lazuli in this condition furnishes an instance of *similia similibus curantur*, in the same way that at one time powdered bone from the human skull was used as an unfailing remedy for epilepsy. In fact, the old anatomical name for a Wormian bone was *os antiepilepticum*.³

This primitive conception of hysteria and its treatment with precious stones by internal administration, fumigation or inhalation, for the purpose of driving down the misplaced uterus which was supposed to produce the globus hystericus, is practically identical with the physical treatment of hysteria by drugs. Such drugs as valerian and asafoetida are often mentioned in modern textbooks as being efficacious in the treatment of hysteria, in fact, one well-known textbook of medicine⁴ states that "perhaps the preparations of valerian are the most useful in conditions of hysterical excitement."

Several modern textbooks of pharmacology refer to valerian and asafoetida either as antispasmodic aromatics or as hysterical sedatives or antispasmodics. Butler states,⁵ "It is probably upon the central nervous system that these drugs (camphor, valerian,

³ Fletcher, Robert: *On Prehistoric Trephining and Cranial Amulets*, Washington, 1882, Gov. Print. Off.

⁴ Strumpell, Adolf.: *A textbook of medicine for students and practitioners*, N. Y., 1911.

⁵ Butler, G. F.: *A textbook of materia medica, therapeutics and pharmacology*, Phila., 1896.

asafœtida), exert their potent action. The antispasmodics appear to exert a calmative influence upon certain nerve centres, delaying nervous excitement and muscular spasm. Asafœtida is a peculiarly potent remedy in relieving paroxysms of hysteria. Valerian has been employed for the same class of disorders as those treated with asafœtida, but seems to be superior to the latter in mitigating hysterical manifestations." Sollman states,⁶ "Asafœtida, valerian and some other malodorous drugs have been used since antiquity as sedatives in hysterical and similar nervous conditions. They are often effective, presumably by olfactory and psychic reflexes."

On the contrary, Cushny takes a more rational attitude, when he states,⁷ "Asafœtida and valerian are used in hysterical affections and the benefits accruing from their administration have generally been attributed to the mental impression produced by their unpleasant odour and taste and not to any action they produce after absorption. The ordinary valerianic salts have no further effect than other salts of the acetic acid series, so that it is quite irrational to use such bodies as valerianate of quinine for their action in hysteria."

A further interesting analogy may be drawn when it is stated that pleasant odours, such as various perfumes, stimulate the sexual feeling and act as aphrodisiacs, whereas the disagreeable odours of valerian and asafœtida tend to inhibit the sexual feeling. When we realize the erotic importance of perfumes in the cultural and æsthetic history of mankind, we can easily see how an evil smelling substance was almost arbitrarily, perhaps unconsciously selected to drive away the sexual feeling, or in the primitive conception of the physically erotic basis of hysteria, to repulse that uterus

whose wanderings about the body were held directly responsible for the hysterical symptoms. According to Binswanger (*Die Hysterie*) the curative effects of asafœtida and valerian are produced by their action on the sense of smell, in fact there is a clearly defined relationship between the olfactory sense and the sexual instinct.

The Roman physician Aretæus stated in "Causes and Symptoms of Acute Diseases" that, "It (the womb) delights, also, in fragrant smells, and advances toward them, and it has an aversion to fetid smells, and flies from them, and on the whole the womb is like an animal within an animal." It was probably this conception which led originally to the use of such substances as valerian and asafœtida.

Another aspect of this physical-sexual basis of hysteria is described by Paul Richer⁸ who states that compression over the ovarian region will immediately stop an hysterical attack. In fact he gives an illustration of a special apparatus for this purpose, which he terms a "compresseur des ovaires."

These drugs were formerly administered on the supposition that evil smelling substances tended to drive the uterus down to its proper position from its wanderings in the body. The wanderings of the uterus formed the old physical conception of the disease as opposed to the modern idea of its psychogenetic basis; for instance, if it wandered into the throat, it produced the *globus hystericus* by an obstruction of respiration.

Hysterical patients often complain of a "pumping" sensation in the uterus, which ascends towards the præcordial region producing palpitation of the heart and a feeling of anxiety. Finally the sensation reaches the throat causing the smothering sensation of the typical hysterical *globus*.

⁶ Sollman, Torald: *A Manual of Pharmacology*. Phila., 1918, 142.

⁷ Cushny, A. R.: *Pharmacology and Therapeutics or the Action of Drugs*. Phila., 1918, 75.

⁸ Richer, Paul: *Etudes cliniques sur l'hystéro-épilepsie ou grande hystérie*, etc. Paris, 1879.

Based on this clinical observation, the older physicians probably formulated this organic connection between the uterus and the *globus hystericus*. These cases in which the symptom of the hysterical *globus* occurs, belong to the group of either conversion or anxiety hysterias. In one instance, which came under personal observation, where it was possible to carry out a complete psychoanalysis, strongly repressed erotic factors could be demonstrated. In this case the *globus* was merely a displacement of the repressed emotions and as the patient improved under psychoanalytic treatment the hyperactive palatal reflex gradually became normal and the sensation of the *globus* disappeared.

Plato states (Timaeus)—“The womb is an animal which longs to generate children. When it remains barren for a long time after puberty, it finds it difficult to bear, it feels wroth, it goes about the body, closing the tissues for the air, stopping the respiration, putting the body into extreme dangers.” We have here a clear description of what is termed in modern neurology an attack of anxiety hysteria. This old idea of hysteria is referred to in Shakespeare’s “King Lear” where the aged king, on the verge of that emotional conflict which finally culminated in his delirium exclaims:

How this mother swells up toward my heart!
Hysterica passio, down, thou climbing sorrow,
Thy element’s below!

The Freudian conception of repression of the sexual instinct as the underlying cause of the protean manifestations of hysteria is not an echo of this primitive theory as some of its critics claim, first, because Freud’s theory is psychogenetic and not physical and, second, because hysteria may occur in the male as well as female. Furthermore the brilliant results of psychoanalytic therapeutics in the treatment of hysteria is sufficient in itself to invalidate any such claim.

The origin of this therapy of hysteria, based on the old theories of the disease, being largely forgotten, the only survival was in this particular drug treatment (*valerian* and *asafoetida*), and led to the explanation being invented that these drugs acted as antispasmodics. Stranger still, these same drugs were finally enclosed in capsules, or sugar or chocolate coated pills or even the newer synthetic preparations were introduced, all for the purpose of hiding the evil smell and taste which were supposed to make it so uncomfortable for the wandering uterus that it finally returned to its proper position.

This use of evil-smelling drugs in hysteria for many centuries, is an example of what may be termed rationalization. Since neither clinical experience has upheld the old conception of the wanderings of the uterus as a cause of hysteria, nor pharmacological experiment has ever demonstrated that *asafoetida* or *valerian* have the slightest antispasmodic action, it must be concluded that such treatment is merely a blind adherence to a tradition, the origin of which has been largely forgotten. The only rational and sound treatment for hysteria is psychoanalysis, as psychoanalysis alone is able to remove those repressed emotions which are the mischief makers in the unconscious mental life of every hysteric.

This subject of the physical therapy of hysteria has been elaborated more fully than was originally intended, and even digressions have crept in, but it was all for the purpose of showing how we all tend to preserve uncut and intact those umbilical attachments which bind us to medical tradition.

For this reason the master minds in medicine were compelled to struggle with the indifference of their contemporaries who did not wish to be disturbed by any new conceptions which might break the continuity of their accustomed mode of thinking. It is the general attitude to take a phantasmal

comfort in present intellectual convictions rather than have these disturbed by mental conflicts involving readjustment to new ideas. Consequently all new discoveries in medicine have met at first with

more or less violent opposition, and neurology, because it deals with such manifold and complex integrations, has been one of the last of medical specialties to succumb to the newer dynamic conceptions.

JOHANN LANGE ON CHLOROSIS

(*Morbus Virgineus*)

"You complain to me, as to a faithful Achates, that your eldest daughter, Anna, is now marriageable, and has many eligible suitors, all of whom you are obliged to dismiss on account of her ill-health, the cause of which no doctor can discover: for one calls it *cardialgia*, a second, palpitation, a third, *dyspnoea*, a fourth, *hysteria*, nor are there wanting who say that her liver is out of order. Wherefore you entreat me by our ancient friendship to give an opinion on her case, with advice as to marriage, and you send me an excellent account of her symptoms. Her face which last year showed rosy cheeks and lips, has become pale and bloodless, her heart palpitates at every movement, and the pulse is visible in the temporal arteries; she loses her breath when dancing or going upstairs, she dislikes

her food, especially meat, and her legs swell towards evening, particularly about the ankles. I marvel that your physicians have not diagnosed the case from such typical symptoms. It is the affection, which the women of Brabant call the 'white fever', or love sickness, for lovers are always pale, but there is very rarely any fever." He then discusses the pathology of the disease with copious Greek quotations from the Hippocratic treatise, "*De Morbis Virginum*," points out that Hippocrates recommends marriage, and says that, with the addition of simple purgatives and emmenagogues, he never knew it to fail. "So be of good cheer, marry your daughter, and I shall be glad to come to the wedding."—Translated by Withington from his "*Medicinarum Epistolarum Miscellanea*," Basel, 1554, ep. xxi.

ELIZABETH FRY, PASTOR FLIEDNER AND FLORENCE NIGHTINGALE¹

By HENRY BARTON JACOBS, M.D.

BALTIMORE, MD.

IT has often been said that the three great medical advances of the nineteenth century were (1) the discovery of *anæsthesia* by Morton in Boston, and Simpson in Edinburgh, through which pain was annihilated; (2) the discovery of *asepsis* by Lister, through which the dread of surgical infection was abolished, and (3) the establishment of the *training school* for nurses which furnished to physicians cooperating, intelligent assistance in combating and healing disease.

In a somewhat indirect way Elizabeth Fry was instrumental in bringing on this third great medical advance. In the passage of time and in the great crowding of later important events, the name of this woman has rather sunk into forgetfulness. Happily, however, it has been recently recalled from oblivion by a most interesting paper by Dr. Henry M. Thomas, and for a full account of her life and activities, I must refer you to his article in the March, 1919, number of the *Johns Hopkins Hospital Bulletin*.

Elizabeth Fry was born on May 21, 1780. Her father, John Gurney, had inherited a large property which he had guarded well. In 1786 he leased the estate of Earlham in Norfolk near Norwich, England. Here Elizabeth, the third of a large family of children, was reared. The house was large and her father and mother were given to hospitality—young men were not wanting, and with her several attractive sisters, there was not lacking a bright and happy life in beautiful surroundings. Elizabeth was nervous in temperament and

rather delicate in health, and with an introspective tendency and a superior intelligence her thoughts were not always engrossed by the festivities and pleasures of country life. A struggle arose in her mind between a call to religious duties which at first seemed to her to be the result of a mere emotion, and the attractions of the world. In her diary at this time she admits that "religion, true and uncorrupted, is of all comforts the greatest." But not to be led away by her emotions she requested her father to send her to London where she might learn if really the attractions of the world are satisfying. In London she occupied herself with dancing and music and often attended the opera, but in these occupations she did not find herself wholly content. At the age of eighteen she undertook a school at Earlham for poor children, for long had she found herself most happy when working for others. Gradually her life became more and more given to service and less to the conventional enjoyments of the girls of her station. At twenty she married Joseph Fry, a strict plain Quaker, well-to-do, in business in London. Children came rapidly of this union. In 1811 the family left London and moved to the large country place at Plasket in the parish of East Ham. Here Elizabeth Fry undertook the care of the needy and sick about her—was interested especially in the children, and was so active in having them vaccinated that the dreaded disease, small-pox, eventually was almost entirely eliminated from the community.

In 1813 she first visited Newgate prison

¹ An address delivered to the graduating nurses of the Church Home and Infirmary, Baltimore, Md. May 6, 1920.

where she was much impressed by the dreadful misery of the women prisoners. The conditions there were terrible, a "Hell above ground." She determined to do her utmost to remedy matters; the authorities were skeptical, but she went to work and by the cooperation of the women prisoners themselves, she succeeded finally in bringing order out of chaos, cleanliness out of filth, occupation out of idleness. The children were separated and instructed, bible readings inaugurated, and the whole character of the institution changed. News of her work spread abroad and soon Elizabeth Fry found herself famous. She appeared before committees of parliament.

Few distinguished people came to London without visiting Newgate. Correspondence was opened with philanthropic people throughout Europe. Later on she became interested in the care of the insane, and did much for their welfare.

In 1824, when at Brighton, she noticed the great numbers of beggars, and the trifling good, even injury, done them by indiscriminate charity, and thereupon, she organized the "Brighton District Society" for caring for these unfortunate people through organized methods. This, as Dr. Thomas says, is probably the first charity organization society. In Brighton, too, she was struck by the hard lot and lack of entertainment in the lives of the men of the coast guard, and immediately she conceived the idea of supplying them with books. A national society was formed and in a few years hundreds of libraries had been established and thousands of books had been distributed throughout Britain to the Coast Guards and to the cruisers off the shore. As time went on Mrs. Fry was invited to visit the Continent—"Visits of Gospel Love" she called them, to inspect institutions and to give advice for their improvement: many hospitals, prisons, and asylums were thus benefited. This, in brief, is a résumé of the work of Elizabeth Fry.

I now turn to the second of our trio, Pastor Flidner. In the "History of Nursing" by the Misses Nutting and Dock, an extended account of his life work will be found. I can give you only an epitome.

Theodore Flidner was born in 1800—and was thus twenty years younger than Elizabeth Fry, and twenty years older than Florence Nightingale. He was, as it were, the connecting bond between these two women. Both his father and his grandfather were Lutheran clergymen. He was a poor boy and only through his own efforts was he able to study at the Universities of Giessen and Göttingen where he sawed wood, blacked boots, and tutored backward or idle students to get money for his expenses.

After leaving the universities, he became tutor in a family in Cologne, and while there often assisted one of the ministers in his parish work and occasionally preached in the prisons where he was able to gain an insight into their wretched condition, and to judge of the hardships and evils of the life of discharged prisoners, particularly the women.

When twenty-two, Flidner had a call to be pastor of the church in the little village of Kaiserswerth on the Rhine near Düsseldorf with a salary of one hundred and eighty thaler a year—or about one hundred and thirty-five dollars a year.

Hardly had he become settled there when the velvet mill, in which the greater number of his people worked, was destroyed by fire and all were thrown out of employment, and consequently the support of the church disappeared. He might have given up his charge and gone elsewhere, but declined and determined to stand by his folk saying he preferred to be "a shepherd rather than a hireling." In order to secure funds for maintaining his church, he started out to collect them travelling through Germany and Holland to England, and everywhere receiving encouragement. In England he

met Elizabeth Fry, visited the Newgate prison, and became much impressed by her efforts for the amelioration of the conditions of the prisoners. He was reminded of the evil conditions with which he was familiar in the prisons at home. What he saw at Newgate of the possibilities of reform was a revelation to him, and he returned to his parish of Kaiserswerth burning with zeal to do something for the prisoners of his own land. He began work in the neighbouring prison of Düsseldorf to which he became a regular visitor, and by June 1826 was able to be instrumental in founding the first German society for improving prison discipline. The great problem was how to protect the discharged female prisoners, and so keep them from the life of evil which at that time seemed to be the only course open to women just out of prison.

With the approbation of his wife, Friederika, whom he had recently married, he determined to offer a haven on his own place to such women. On September 17, 1833, he writes "a young convict, Minna by name, just discharged from the penitentiary, came in and begged piteously to stay. But where to put her? In the garden was an old summer house, the favorite resort of children, and we decided to put Minna there. The little house was only twelve feet square, and no stairway led to the tiny garret, so Minna ascended from the outside by a ladder to go to bed, and next morning climbed down the same way."

This was the beginning of the institutions at Kaiserswerth—a beginning entered into with faith which should grow and grow by that same faith until the work at Kaiserswerth should become known the world over and should have an influence in many respects second to none anywhere.

In the course of the winter nine other women sought the refuge and a separate building near the pastor's house had to be built for them. Some of the women had children, and the next step was to start an

infant school on the principles of the modern kindergarten. Teachers were needed and so, soon after, a normal school for the training of infant school mistresses was undertaken.

In Fliedner's journey through Holland in 1822 when begging for his parish he "had seen the Mennonite deaconesses, chosen by church officers, living in their own homes, but busy in their parish work with the poor and sick." He wrote of them:

This praiseworthy Christian arrangement ought to be introduced into all other Evangelical churches. The Apostolic Church created the office of deaconess, knowing well that the ministrations of men could never form a substitute for tender womanly feeling and fine womanly tact in solacing physical and spiritual distress especially among other women. Why has the modern church not retained this Apostolic feature; must misuse destroy every good thing? To how many women and maidens would this not open a new and congenial field?

In his parish there was much poverty and illness, and great incompetence on the part of the people in ministering to their sick, so Pastor Fliedner's next thought was to have a hospital for the care of the needy and a corps of nurses or deaconesses to attend them.

On October 13, 1836, the "Deaconess Hospital Kaiserswerth" was opened without patients and without deaconesses, but with faith abundant. This hospital occupied a part of the deserted mill, the ruin of which was responsible for all the good that was to follow. Surely often do we see good coming out of evil, if only patience and courage persist. On the Sunday morning following the opening of the hospital, the first patient, a servant girl, asked admittance. Four others came in the month, and before the end of the winter sixty patients had been under treatment. In this undertaking, too much credit for the share she took in it cannot be given to the wife, Friederika.

She was especially interested in the deaconesses who were to be the nurses, and of *her*, rather than of Pastor Fliedner, should we think when we consider the organization of the deaconesses' school of nursing.

Almost simultaneously with the patients came the candidates for training. In the course of the year seven nurses had entered.

There was nothing haphazard about their admission, for the Pastor, when he instituted his order of Protestant deaconesses, made a simple code of rules; no deaconess was to be under twenty-five years of age—and although she was engaged for a term of five years, she was free to leave at any moment. The candidates were solemnly received into the community and consecrated to their work by the laying on of hands by the Pastor, who invoked a final blessing in the words: "May God, the Father, the Son, and the Holy Ghost, three persons in one God, bless you; may he establish you in the Truth until death, and give you hereafter the Crown of Life. Amen."²

The dress of the deaconess was of plain blue cotton, a white apron, large white turndown collar and white muslin cap tied under the chin with a large bow. Each deaconess went through a course of practical housekeeping, had instruction in simple bookkeeping, letter writing and reading aloud, and in the medical and surgical wards had lessons in practical nursing. In her first journey to Germany, Elizabeth Fry visited Kaiserswerth and was received with great attention. She was much pleased with all she saw, and was determined on her return to England to establish there a training school for deaconesses, a determination which she carried out, although she herself was not able to undertake its management. Her sister-in-law, however, Mrs. Samuel Gurney, and other ladies consented to do so, and the "nursing sisters," as they were called, were introduced into England.

Pastor Fliedner's work became world-wide in extent. Institutions similar to that at Kaiserswerth were established throughout Germany and in many foreign countries, he himself visiting the countries for this purpose. To use Miss Nightingale's words, "Pastor Fliedner began his work with a bed under a roof, not with a castle in the air, and Kaiserswerth is now diffusing its blessings and its deaconesses over almost every Protestant land."

Now let me trace the influence of Elizabeth Fry and Pastor Fliedner upon the third of our trio. Florence Nightingale was born on May 12, 1820. Her early history is not unlike, in many respects, that of Elizabeth Fry. "She was one of two daughters of wealthy parents, and was brought up in all the luxurious refinement of the best type of English homes, in the midst of a large and affectionate family connection, and in an environment enriched by all the intellectual advantages that such circumstances could bring." By means of her father's teaching, she had an education far in advance of the average girl of her time which was similar in many respects to that of the college girl of today. She spoke several languages, wrote essays, and discussed philosophical questions with intelligence and thought. At the same time her early life was not without all those social enjoyments which abound in English country homes. At sixteen she was taken to the Continent for travel in France, Italy and Switzerland, and spent a winter in Paris, amid the social gaieties of the capital. It was only when she was at home again that she began to realize that these social pleasures were not wholly satisfying. This feeling grew with the years. She found herself happiest when going about among the poor of her neighbourhood ministering to their wants and helping them in their sickness. In this tendency she was combatted both by the social customs of her time and by the admonition of her family and friends.

² Tooley. Life of Florence Nightingale. N. Y., 1905.

Yet the feeling that there was something in the world for her to do outside the mere conventions of the day took deeper and deeper control.

At last when she was twenty-five years old she was forced to the conclusion that she had a distinct call to a life independent of that of the young women of her station, and she determined to devote herself to the care of the sick. Yet out of respect to the opinion of her parents, she delayed taking the final step. Rather as a diversion, trips to the Continent were planned for her. In 1847, when in Rome, she met the Sidney Herberts. A friendship was established which was not only unusual, but destined to be of utmost value in her subsequent career. While in Italy, she visited the hospitals, and studied the methods of the nursing sisterhoods. In 1849-50 she was in Egypt and Greece and on her way back to England she visited Pastor Fliedner's Deaconesses Institute at Kaiserswerth. Here she spent a fortnight and was so attracted by the life and work, that with full permission of her parents, she returned the following year, 1851, for three months' training in nursing. Then it was that she came fully under the influence of that good man and his remarkable wife. This refined cultivated English woman spent long hours of hard work in the routine drudgery which constituted the elements of skillful nursing, and she herself declared "at last I am intensely happy."

Early in 1853, without religious prejudice, she entered the Sisterhood of St. Vincent de Paul in Paris for further study, and in July 1853, she undertook the superintendency of the "Sick Governesses Home" on Harley Street, London. Here the War of the Crimea found her, giving of her best, praying to overcome her failings, persisting till she should conquer—an example, a perpetual example to all young nurses.

The story of her life in the Crimea is too thrilling wholly to neglect, but it must be

considered but an episode in the development of her career—the most notorious episode to be sure, and the one leading afterwards to her greatest usefulness.

The English had no women nurses in their military hospitals in the Crimea, while the French had, and the contrast in the comfort of patients and in the mortality statistics of the two armies was so unfavorable to the British that on October 12, 1854, a letter appeared in the "Times" calling attention to the startling facts, and beseeching English women to enlist their services. Two days later, on October 14, Miss Nightingale wrote to Lord Herbert, Minister of War, asking permission to go out to the Crimea with a few other women nurses at her own expense. On the same day Lord Herbert wrote Miss Nightingale requesting her to go and putting her in charge of the "Female Nursing Establishment in the East." In five days she sailed with five nurses, taken from the Roman Catholic and Anglican Sisterhoods. She reached the Scutari hospitals across the Bosphorus from Constantinople on November 4. The wounded were pouring in, and words fail to describe the horrible conditions she found. Everything which is needed in a hospital seemed to be wanting, except sick and wounded men; of these there were more than 2000, and more were coming every hour. Instead of attempting at once any form of real nursing, she was forced to the task of administration, and her first requisition was for 300 scrubbing brushes.

In the months which followed she revolutionized conditions in spite of the opposition of the military authorities in charge; her success was largely due to her persistent determination, her clear and intelligent understanding of the needs of the sick, the introduction of the elementary principles of hygiene, cleanliness, fresh air, warmth, good food—and to the fact that she had the ear and the confidence of the Minister of War in London, Lord Herbert,

to whom she appealed in every emergency. The mortality rate among the wounded and sick diminished enormously. The men became devoted to her. Her success was tremendous. Though taken ill with Crimean fever, she refused to return to England, and so she remained the admiration of all, both in the Crimea and in England until three or four months after the end of the War—a chronic invalid, and so to remain for the rest of her life. Such enthusiasm marked her return that everything possible was done to show her the appreciation of the British public; resolutions were engrossed, receptions were planned, a visit to the Queen was arranged, and a great fund of forty-four thousand pounds was subscribed to be placed at her disposal for carrying on her beneficent work—to be known as the “Nightingale Fund.” In spite of invalidism, Miss Nightingale, in the years immediately following her return, turned her attention in conjunction with Lord Herbert to the great reforms needed in the Army, particularly in its medical department.

To quote from Dr. Abbott's little book:³

The Crimean episode will always take a leading place in the story of Florence Nightingale's life, but its greatest importance lay in the insight, experience and political influence which she gained in it, and which made it possible for her to inspire the far-reaching reforms in the management of the medical department of the Army; namely.

1. Better barrack and military hospital construction resulting in improved health to the Army.
2. Revision of army medical statistics, and placing them upon a higher and more accurate plane.
3. Foundation of the Army Medical School and the Royal Medical College.
4. Formulation of a code for regulating the relative duties of regimental medical officers, and organizing the detail of the internal administration of military and other hospitals.

³ Abbott, Maude E. Seymour: *Florence Nightingale as Seen in Her Portraits*. Boston, 1916.

The Army Medical School was peculiarly Miss Nightingale's child, and she watched over it with earnest solicitude. Sir James Clark wrote “For originating this School we have to thank Miss Nightingale, who, had her long and persevering efforts effected no other improvement in the Army, would have conferred by this alone an inestimable boon upon the British soldier.”

In these years, Miss Nightingale was confined largely to her room, and here she worked out plans for reforms in many directions. Here, too, she wrote those books which were to have such influence in the future upon the subjects considered.

In 1858, “Notes on Matters Affecting the Health, Efficiency and Hospital Administration of the British Army.” In 1859 “Notes on Hospitals” which completely modified prevailing ideas on hospital construction, and in 1860 “Notes on Nursing, What it is, and What it is not.” Of this more than 100,000 copies were sold. The book was a pioneer in establishing the principles of modern hygiene. It taught, first, that the well must be cared for, that “nursing the well,” was the first important step, even as important as nursing the sick, that preventive hygiene, ventilation, cleanliness, warmth, proper drainage, sunlight, were just as necessary as curative medicine. So Miss Nightingale may well be considered the forerunner and the inspiration of these welcome modern cries of “Prevention rather than Cure.”

Then she goes on to point out what the nursing of the future must be, a delicate and difficult art, some knowledge of medicine and surgery, and acute powers of observation, all of which requires training and enthusiasm.

Miss Nightingale unquestionably is the founder of modern nursing—and although she was not entirely alone, nor was she in point of time the first in the field, yet from the fact that she was able to inaugurate the service on a larger scale and in a form which

attracted general attention, she must have the credit of originating modern nursing. Before her it was considered menial employment which was ill paid, little respected, and did not attract women of character. There was no high standard of efficiency, and no systemized training was organized.

June 26, 1860, is a memorable day, for on that day the Nightingale Training School for Nurses was opened in St. Thomas' Hospital, London. For the support of this school she made use of the Nightingale Fund amounting, as I have said to forty-four thousand pounds. The principal sum was invested in the name of trustees, and a council was nominated by Miss Nightingale for the administration of the trust to enable her to establish "an institution for the training, sustenance, and protection of Nurses and Hospital Attendants."

Much thought was given to the project. The hospital was to provide facilities for the training, and the Nightingale Fund was to pay the cost including pay of nurses. Mrs. Wardroper, the matron of the hospital, was made the Superintendent of Nurses—a very remarkable woman, who for twenty-seven years continued at the head of the School. Everything being ready in May 1860, advertisements were inserted in the public press inviting candidates for admission, and on June 24, 1860, *fifteen* probationers were admitted for a year's training. Thus, was launched on this modest scale the scheme which was destined to inaugurate the modern art and practice of nursing. The essential principles of the scheme were as stated by Miss Nightingale—

1. That nurses should have their training in hospitals especially organized for the purpose;
2. That they should live in a home fit to form their moral life and discipline.

Instruction was given by the resident medical officer, and lectures by physicians connected with the hospital. "Monthly sheets of personal character and acquirements of each nurse" were to be kept by the

superintendent. The moral record was under four heads: (1) Punctuality; (2) quietness; (3) trustworthiness; (4) personal neatness; (5) ward management or order.

The technical record was under fourteen heads of which "Observation of the Sick" was a major head. Nurses were marked excellent, good, moderate, imperfect, or zero. Those who "passed" were at the end of the year placed on the Hospital Register as certified nurses—and as rewards for good conduct or efficiency, there were offered gratuities of five and three pounds sterling.

The hospital was to be a *home* as well as a *school*. The upper floor of a new wing of St. Thomas' Hospital was fitted up for the pupil nurses so as to provide a separate room for each with a common sitting room, and two rooms for the sisters in charge. No pupil was admitted without a certificate of good character. Their board, washing and uniform was provided by the Fund. They were given £10 for their personal expenses. The chaplain addressed them twice a week. The uniform was brown with white cap, collar and apron. Thirteen of the entering fifteen completed the year's course; six were admitted as full nurses in St. Thomas' Hospital; two were appointed nurses in Poor Law infirmaries, and applications for the placing of others were under consideration. The purpose was not to have them go to private cases, but to have them remain in institutions, so that the seed might be sown abroad in other hospitals.

The school at St. Thomas' has been continued to this day. For many years Miss Nightingale sent a New Year's address to the Nightingale nurses, constantly inculcating high ideals and giving personal inspiration to the order which bore her name. Miss Alice Fisher, who regenerated Blockley Hospital in Philadelphia, was a Nightingale nurse, and others in this country came directly under Miss Nightingale's influence.

It is interesting to note in passing that Mr. Francis T. King, president of the trustees

of the Johns Hopkins Hospital, before establishing the training school in that institution, went to London, and in a two-hour visit to Miss Nightingale considered with her all the details of the proposed new organization and secured her approval of them. In one of her trips to London at a much later date Miss Nutting, then superintendent of nurses of the Johns Hopkins Hospital, had a very pleasant visit upon Miss Nightingale, so that we may say her influence directly reached Baltimore.

The inception of the Red Cross on an international basis owes its origin to a Swiss physician, Dr. Henri Dunant. Shocked at the idea of the wounded at Solferino in 1859 lying unattended for days, and remembering what had been done by Miss Nightingale in the Crimea, Dr. Dunant proposed an international agreement that there should be available an ambulance and nursing force which should be strictly neutral—"an organization with international privileges established for the care of the sick and wounded in war."

As a result of his efforts, an international conference was held in Geneva in August 1864 which framed the famous "Geneva Convention," on which the constitution of the Red Cross is based—and which declares medical aid on the field to be under the protection of a recognized neutrality. The British delegates to the Conference were Miss Nightingale's friends and she drafted their instructions.

In 1872 Dr. Dunant, reading a paper in London said "though I am known as the founder of the Red Cross and the originator of the Convention of Geneva, it is to an Englishwoman that all the honour of the Convention is due. What inspired me to go to Italy during the War of 1859 was the work of Miss Florence Nightingale in the Crimea."

In the wars which followed, the American Civil War, the Franco-Prussian, etc., Miss Nightingale was consulted by the military

and medical authorities of either side and she was glad to give them impartial aid. In 1861, a federal sanitary commission was appointed which reproduced much of Miss Nightingale's Crimean work in the United States.

In 1870-71 for her advice and assistance, the French Société des Secours aux Blessés gave her its bronze cross, and the German Emperor decorated her with the Prussian Cross of merit. In 1883, after the Egyptian Campaign, when on a visit to Balmoral, she received from the Queen's hand the decoration of the Royal Red Cross.

Miss Nightingale had begun her relief to the poor by visiting with her mother the homes of the dependants on her father's estate at Lea Hurst, and never from that time was it out of her mind that the sick poor needed and should have better nursing than they were able to provide.

She recognised that for this work special training was required, a nurse who had received a course of instruction in a hospital was not necessarily competent to nurse the poor in their own homes. Special knowledge and special experience were needed before a woman, however skilled in the technical side of nursing, could become a good district nurse. During the period that she was establishing the Training School at St. Thomas' Hospital, she was planning to found a special training school for nurses for the poor. At her suggestion the pioneer effort in this direction was to be tried at the Liverpool Infirmary. The prospectus for the Liverpool Training Home for Nurses was made public in 1861-62. The objects of the Training Home were: 1. To provide thoroughly educated professional nurses for the poor. 2. To provide district nurses for the poor. 3. To provide sick nurses for private families. Hitherto, the workhouse nurses were pauper women, uninstructed and unskilled. The Brownlow Hill Dispensary at Liverpool had twelve-hundred beds occupied by all sorts of

diseases, and the only assistants to the two women officers were the pauper women.

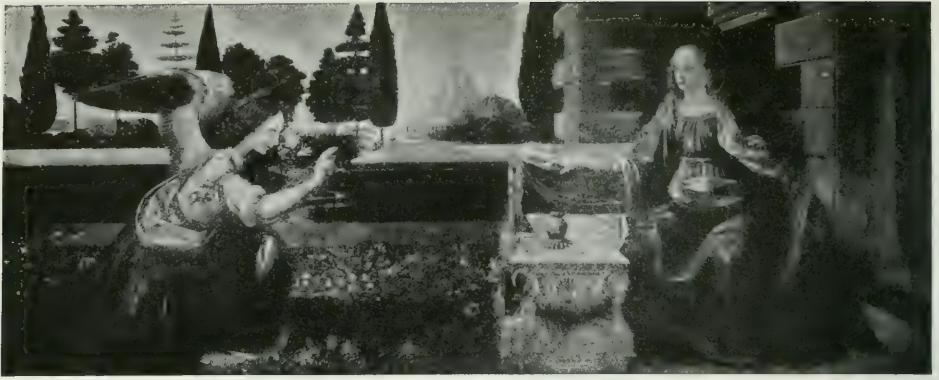
Miss Nightingale made every effort to get trained nurses introduced. There was an anonymous offer to supply funds to try it for three years. Miss Agnes Jones, who had been trained at Kaiserswerth and at St. Thomas' Hospital, was appointed Lady Superintendent and she brought twelve nurses from St. Thomas'. She attempted to train the pauper women, but without avail; of the fifty-six in training, not one proved of any worth. But with a better class of women Miss Jones' work was so satisfactory that, though she died in the enthusiasm of her effort, the managers of the Infirmary determined to persevere with the system she had introduced.

It is almost impossible at this distance of time to realize the conditions of nursing in Florence Nightingale's early days. "A nurse meant a coarse old woman, always ignorant, usually dirty, often brutal—a Mrs. Gamp, in bunched-up sordid garments, tipping at a brandy bottle, or indulging in worse irregularities. The nurses in the hospitals were especially notorious for im-

moral conduct; sobriety was almost unknown to them; and they could hardly be trusted to carry out the simplest medical duties." The change from this condition to that which now prevails is due to no one so much as to Florence Nightingale. Miss Nightingale made the public perceive that nursing was an *art*, and must be raised to the status of a trained profession. Before, the status of the nurse was that of a domestic servant. Sir Edward Cook in his biography of Florence Nightingale says she was able to achieve her purpose through her *example*, her *precept*, and her *practice*.

Her work in the Crimea, her unselfish devotion to the great task undertaken, and the wonderful results accomplished raised her name to a height perhaps never before attained by a woman in England, and the desire which stirred the minds of young women throughout the Empire was to emulate the example of this wonderful woman. Her career was a call and a challenge to women. Here was a woman of high ability, rich, and of great social standing, who had forsaken all to become a nurse. Is it any wonder that she had followers?





Annunciation from Monte Oliveto—Uffizi
(Attributed to Leonardo by some critics; by others to Verrocchio)

LEONARDO DA VINCI AS A SCIENTIST

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BALTIMORE, MD.

INTRODUCTION

THE relation of a great man to his times, is, as a rule, viewed only from one perspective, namely, that of the individual as bearing upon the human thought and progress of his day. More correctly, it is a reciprocal relation, in which not only the perspective just spoken of must be considered, but also the relation and influence that the social, political, religious and intellectual standards and conditions of his day may have had upon the great man himself. It is therefore impossible to study any human genius and obtain a correct knowledge of his power, apart from the history of his times.

Scientific history is a narration of human events given connectedly and systematically and arranged according to causal factors. In that endeavor we find the relation of cause and effect to be most frequently reciprocal also. Men make history, and history makes men. In what particular instance one or the other takes place and how in the same individual—while he may be making history, he himself may become the object of the

very historic effect that he is producing—this is the object of scrutinizing investigation into original sources bearing upon the life of any great man whom we desire to study.

A knowledge of the history of the period in which the great man lived, is, therefore, indispensable. But if we study the histories of great men that have been written at various epochs after them, especially with regard to one side of the character of any particular genius, we frequently find this character represented in a widely different manner by different historic scholars. This is explained by the fact that each investigator will view the work and influence of the great man he is studying through the spectacles of his own times. It may be realized, therefore, that while the history of any one great man may have been exhaustively written, and written by men of talent, many hundred years ago, this does not mean that a more comprehensive history, and one containing renewed interest may not later on be written by another historiographer. Moreover, some of the contributions to human welfare and human thought, which great men have made,

have required centuries for maturing and bringing about their most telling effect; in fact, the nearness of a great event to its author obscures all correct judgment. For example, we are at the present time, 1921, yet unable to discern clearly the complex international relations in Europe that brought on the great war of 1914; nor can any man living at this date predict what the

demerits of the work of any artist or scientific man.

LEONARDO DA VINCI, THE SCIENTIST

In those happy days when a new spring-time was breaking upon old Europe, and minds were awakening everywhere from medieval slumber to new life, in the time of the rebirth of the arts and sciences, there arose in various countries learned men and artists whose many-sidedness seems hardly creditable in these days of the universally applied principle of the division of labor. Especially in Italy, there were at that time several distinguished men who not only transported their own and future generations to a point of admiration by their prodigious creations in the broad field of the fine arts, but who shone also at the same time by their contributions to science. As one of the most universal minds of that memorable epoch and of all time, we turn in wonder to the name of Leonardo da Vinci.

In mentioning Leonardo, we immediately call to mind "The Lord's Supper" and "Mona Lisa." At this time, however, we are not considering the celebrated works of art of Leonardo, nor his famous controversy with the mighty Michael Angelo, nor his powerful influence on the young Raphael; in a word, we are not touching upon his importance in the history of art, but endeavoring to get acquainted with another less well-known side of this highly gifted genius. For as this master knew how to enrapture with the charm of his portraits of women and men, how to exalt with the dignity of his figures of the apostles, so he also was capable of setting up for himself an imperishable memorial in the history of science by his definite solution of difficult problems in physics. We now propose by means of his manuscripts to pursue the scientific activity of this versatile mind. We want to go eavesdropping on the master in his works or at his apparatus



Self-Portrait of LEONARDO DA VINCI.

effect of this war will be on human civilization. I venture to assert that all efforts to give an interpretation of these questions at the present time will, by future historians, be proved to have been only tentative, if not entirely conjectural.

The publication of the "Anatomic Contributions of Leonardo da Vinci" by the Swedish house, Jacob Dybwad, Christiania, which began in 1916 and was just completed in 1919,¹ about 425 years after these admirable anatomic studies were made by da Vinci, is an example of the clarifying effect of time on the conceptions of the merits or

¹ ANNALS OF MEDICAL HISTORY, i, 326, for review.

while he is tracking the mysterious behavior of the forces of nature, discovering her laws, and with skilful hand making her serviceable to his mighty will.

Leonardo da Vinci, born in 1452, out of wedlock, was the son of "Caterina," a peasant woman, and Ser Piero da Vinci, notary of the signory of Florence, who was married four times in rapid succession, and had eleven legitimate children by the latter two wives. Leonardo grew up in the loving bosom of the family, where, with his nine brothers and two sisters, according to the custom of the time, he received his first instruction from a humanistic teacher. Leonardo's early manifested predilection for drawing and modeling led to his being put under Andrea del Verocchio, alike goldsmith, sculptor and painter, but above all a teacher. The latter instance, together with the varied circumstance of Verocchio's profession was probably a deciding factor if not in arousing, at least in fostering a native multifarious talent in this pupil. Like his master, Leonardo was at the furnace one day, at his easel the next. Art was here closely allied with craft and mental endowment alone differentiated the artist from the artisan.²

The conditions under which these anatomic drawings arose will be elucidated in the present article on da Vinci, which is intended as an introduction to a second study, in which I shall consider more especially his contributions to physiology and natural philosophy.

In those days the flourishing commercial and industrial activities in some Italian cities furnished the support to the arts and sciences. Bloody wars were often waged to get possession of some lucrative branch of industry, when the perfecting of methods of production were considered state secrets

and their divulgence, treason. It is not strange, therefore, that preeminent minds took a prominent part in the improvement of mechanical appliances. We shall see how Leonardo da Vinci promoted industrial progress; but through it all let us bear in mind from first to finish, that Leonardo received the necessary preparation for his varied skill in the school of Verocchio, where in daily activities, both artistic and mechanical, he grew from boyhood to adolescence.

Nature marked its chosen son not only with unusual mental endowment, but with a captivating person and presence. In the self-portrait of the master, at the height of manhood, we see his dark abundant hair curling down upon his broad shoulders and a huge black beard falling upon his breast, the whole framing a pale oval countenance. The dignified seriousness of the lofty brow is mitigated by a pair of soulful, friendly looking eyes. A noble figure harmonizes with the intellectual, amiable physiognomy, and his contemporaries pronounced him the handsomest man in all Italy. Blessed with unusual strength, he was a bold swimmer, an audacious rider, an indomitable fencer, and an elegant dancer. In his person, grace and force were in rare union. With the same hand that slid lightly over the strings of a lute, he bent a horseshoe like so much lead; with the same hand that traced the delicate outline of a sweet woman's face, he restrained the wildest charger in his course. His open nature and his agreeable intercourse unlocked for him the social circles of Florence. He captivated the women by his fascinating appearance, by his poetic and musical gifts, and not least by his untiring love of dancing; to the merry feasts of his friends he added charm by his graceful pleasantries. Thus in the midst of an exuberant life in the city of the Medici, between times of bustling festivities and times of serious application, Leonardo ripened from youth to manhood. The young

²See Goethe on Jos. Bossi's book concerning Leonardo da Vinci's painting of the Lord's Supper at Milan. Goethe's Werke. Grote Edit. *Zur Kunst.*, xvi, 263.

man's power of will was marvellous indeed, to enable him to dash away from boisterous merrymaking to studies in mathematics and physics, the pursuit of which requires preeminently a calm and collected state of mind.

Already at Florence, Leonardo had gathered about him a considerable circle of disciples and was active not only in following art but also in endeavoring to utilize his knowledge of mechanics. Not finding in Florence the desired field for his talents, at the age of thirty he addressed a letter to Duke Ludovico Moro at Milan. In this letter he fully expatiates on his manifold capabilities for purposes both of war—and of peace, mentioning his ability:

1. To build portable bridges, safe from fire and sword and to burn and destroy hostile bridges.

2. To drain moats during a siege, to construct scaling ladders and other apparatus for this purpose.

3. To destroy any tower or fortification not built on rock.

4. To make light transportable cannons for ejecting burning masses, the smoke of which would cause terror, destruction and confusion among the enemy. (Flammenwerfer—smoke

scorers.)

5. To dig subterranean tunnels to inaccessible places noiselessly, even under rivers.

6. To construct secure and unassailable covered wagons for invading the enemy's lines with guns and not to be impeded by ever so dense a mass and behind which the infantry can follow unimpaired. (Tanks.)

7. To cast guns, mortars and hurling engines, etc.

8. To supplant cannons, where these are impracticable, with other, until now unknown, projecting weapons.

9. To construct fire- and gun-proof ships; finally powders and inflammables.

10. To compete, in times of peace, with any one in architecture for the erection of public and private buildings and in the building of canals; to execute statues in marble, bronze, and clay; execute paintings, etc.



Statue Erected at Milan in Honor of LEONARDO DA VINCI.

In line with the turbulent times, Leonardo put his abilities as military engineer into the foreground. This letter led, however, to Duke Moro's engaging him for the creation of an equestrian statue of Francesco Sforza. This statue was later destroyed by the invading French.

In Milan, Leonardo founded an academy which, as the foremost school in the sciences and fine arts, enjoyed a high reputation even beyond the confines of Italy, and was considered a shining prototype for all similar institutions of Europe in later years. As teacher in this school, Leonardo outlined a number of writings which sadly shared the fate of most of the master's works of art. But the sparse fragments at present stored at Milan and at Paris comprise such an astonishing number of valuable observations and such important results of scientific speculation that we are led to believe we have before us an encyclopedia of the arts and sciences of that time rather than the hasty notes of one single individual. These sheets covered with letters and drawings form, as it were, a diary of his mind; they contain jottings of his ideas as they occurred to him: now the sketch of a charming woman's head and on its margin a sonnet; tomorrow, the plan of a church, beside it an algebraic calculation; at another time the sketch of a machine, accompanied by remarks on the courses of the stars and the structure of the earth.

A part of these writings betrays plainly that they were destined as a syllabus for his lectures in the academy. Another part certainly originated in the tumult of war, when he was on a journey through Umbria and the Romagna in the service of Caesar Borgia. In his leisure times he used to systematize these various observations and ideas according to content and, as is manifest from numerous references in the extant manuscripts, they consisted of complete treatises subdivided into chapters on such subjects as painting, hydraulic engineering,

the motion, impact and friction of bodies, machinery, and comparative anatomy.

Leonardo's peculiarity of writing from right to left (mirror writing), as he was said to be left-handed, gave his pages, at first glance, the appearance of being covered with illegible hieroglyphics, and this circumstance, together with the unconcern of the first possessors as to the value of the material, may have contributed to the fact that their contents became known very slowly and imperfectly. Personally, I believe that Leonardo da Vinci was not simply left-handed—as some of his biographers assert—but ambidextrous. This can be judged from some of the characteristics in da Vinci's sketches in Milan and the Windsor Castle collection. I shall consider the evidence of my view later.

The best known of Leonardo's writings is his treatise on painting. From this we learn that in his artistic creations, he did not follow unconsciously the intuition of his genius; but went to work rather after mature reflection and careful study. According to his opinion, that artist deserves the highest commendation who, as nearly as possible, can present an object on the flat surface of his canvas so that it appears in relief and rounded. Only the ignorant man lays the main stress on beauty of color. Accordingly, he aims to initiate his pupils in the secrets of perspective, which he calls the steering gear of painting. Even today we cannot explain to the beginner the concept of linear perspective more clearly than this is covered in the words of Leonardo: "Take a pane of glass, fix it stationary in vertical position between the eye and the object you wish to draw; step back from the glass two-thirds of your arm's length, hold your head still without moving, close one eye, and draw everything you see through the glass." According to this direction a picture is indeed obtained in the simplest manner and drawn correctly according to the rules of linear perspective. For

the realistic representation of an object, however, correct linear proportions will not suffice alone, but color must be graduated according to distance. The remoteness of an object, determines the layer of air that will be interposed between it and the observer; the more remote the object is the more the colors lose their individuality and the outlines their sharpness and distinctness. Besides establishing the principles of linear perspective, Leonardo was the first to conceive similar principles for air perspective; and Correggio, the much lauded master of *chiaroscuro*, justly calls him his teacher.

How easily Leonardo passes from art to a contemplation of nature in general is proved by the remark adjoining that on the influence of intermediary air on color: "The blue color of the sky is likewise due to the altitude of the illuminated layer of air that intervenes between the darkness beyond and the earth. Along the horizon the blue appears lighter in shade than overhead, where the line of vision passes through the smaller masses of air permeated with dense moisture." The influence of yellow artificial light did not escape him. He also knew the phenomenon of contrast, for he expressly emphasizes the fact that every color shows to better advantage at the juncture with an opposite shade, that black appears darker when it adjoins a light color and conversely. He lays great stress on the proper distribution of light and shade, and finally cites the reason why a picture executed as nearly perfectly as possible, according to all the rules of linear and air perspective, and according to illumination and color, can never present the objects in as perfect relief as they appear to our eyes, for, in nature we see an object with two eyes of which each occupies a different position in space. We, therefore, receive two impressions of any object which we fuse mentally into a stereoptic entity.

There had been nothing new in optics since Claudius Ptolemy instituted his in-

vestigations on refraction, so Leonardo began his studies in perspective where optics had been left for nearly fifteen hundred years. The term 'perspective' must not lead us astray, for the writers of the Middle Ages, from Roger Bacon (1214-1292?) to the time of Johannes Müller, of Königsberg, according to precedence from the ancients, designated by this term all investigations on light in general, whence the term perspective was to them synonymous with optics. Accordingly, in his perspective, Leonardo frequently enters the field of optics in general. Long before Cardan (1530) and Porta (1558) he discovered the camera obscura. The ancients explained vision as the contact, with the objects seen, of rays of light emanating from the eye; but Leonardo deduced the inversion of the image and its diminution from the paths of the rays of light, as done today, and in his ingenious way did not hesitate to utilize this discovery of the camera obscura in explaining the functions of the eye. To convince his pupils of the correctness of his view, he even constructed an artificial eye in accordance with his knowledge of anatomy. This important discovery justifies a division of the honors for having founded physiological optics between the great master and Keppler (1571-1630) who furnished the mathematical proof one hundred years later.

When art gradually stripped the cramping fetters of traditional forms and on all sides a striving toward being true to nature gained the ascendent, those creative artists that wished to infuse life-like truth into their forms felt it peremptory that they know thoroughly the human body, not only according to its external outlines, but also according to its internal organization. The status of anatomy in the Middle Ages was deplorable. The Arabs, to whom the medieval physician owed his meagre scientific knowledge, were forbidden by

their religion to open cadavers. The abstracts and commentaries of the Greeks and of Galenus (131-200), to which physicians confined themselves and which had been rendered into barbarous Latin by the so-called Arabists or medieval translators of the medical writings of the Arabs, had to suffice the anatomical needs of the physicians for, in the occident the opening of cadavers was also for long periods, but not altogether, prohibited during the Middle Ages. Mondino de' Luzzi of Bologna (1326), whose book on anatomy, copied in part literally from the canon of Avicenna, an Arabic physician (980-1036), was in almost exclusive use in all the medical schools of Italy for more than two hundred years, mentions as something quite remarkable that he had dissected three cadavers.³

Under these circumstances we are not astonished to find a lack of illustrations true to nature, so important an aid to the student of anatomy. The first attempts were the work of Johannes de Ketham, a German physician, residing in Italy toward the end of the fifteenth century. These illustrations transmitted the traditional errors, and from one such drawing by Magnus Hundt (1501) we are astonished at the adventurous conception of the form and position of the human organs which was current among the physicians at the beginning of the sixteenth century.

Accordingly, there existed no such thing as anatomy. But Leonardo was quite the man to create this science. He found a congenial spirit in the person of Marco Antonio della Torre who, as a young man, had founded a school of medicine at Pisa. Not satisfied with the traditional error of Mondino and the animal anatomy of Galenus, Marco Antonio apprenticed him-

self to nature and dissected numerous cadavers. A series of magnificent anatomical drawings from Leonardo's own hand, the fruits of common study, are an everlasting monument to these two gifted men as creators of illustrative anatomy.

These drawings, which had disappeared for a long while, have lately been brought to light. A file of Leonardo's manuscripts came into the possession of Charles I of England probably through Count Arnold, who resided at the court of Ferdinand II as ambassador in 1636. This file, together with the sketches of Hans Holbein (1493-1554) had been stored in a special closet in Kensington Palace. Here it was discovered in the eighteenth century by Dalton, the librarian of George III. This volume contains 235 leaves with 779 drawings executed in various manners with black and red crayon on blue, brown and red paper. Besides portraits and caricatures, and riding, fencing and tournament subjects, and illustrations in optics, mechanics and hydraulics, there are numerous fine crow-quill illustrations of bones, muscles, blood vessels, viscera, brain, eye and ear executed with utmost fidelity to nature and with the most artistic finish. These illustrations in some respects, especially in the finesse of execution, surpass those famous drawings in Vesalius's anatomy (1538) so long ascribed to Titian. J. Hunter, the most eminent anatomist and physiologist of the eighteenth century, speaks of them in the following terms: "*I consider Leonardo as the best anatomist and physiologist of his time; his teacher and he were the first to know how to rouse the spirit of the study of anatomy.*" At Hunter's instigation, Chamberlaine, when publishing some of Leonardo's drawings, included several plates with anatomical illustrations. Knox, also an excellent English anatomist, who later on studied the originals, even declared that the representations which Leonardo made of the valves of the heart,

For a most illuminating article on the beginnings of *Sculpture and Painting as Modes of Anatomical Illustration*, see the contribution by Drs. Fielding H. Garrison and Edward C. Streeter in *ANNALS OF MEDICAL HISTORY* II, 305.

and especially of the semi-lunar valves of the aorta and of their varying positions, could only be founded on a correct conception of their functions. Accordingly, it is assumed that Leonardo may have known the circulation of the blood one hundred years before Harvey, an idea that has received the approval of Dr. Arnold C. Klebs.⁴

Moreover, Leonardo did not content himself with a knowledge of the defunct body, but extended his investigations also to the physiologic functions of several organs. The results of these studies are preserved in part in his treatise on painting, in which he considers not only the relative conditions of the body at rest but also the conditions of its movements both voluntary and involuntary. He begins with the flexions and extensions of the several members and explains walking quite in the sense of modern physiology, as a constant falling forwards. Then he expatiates on the influence of occupations on the carriage of man in explaining which muscles are active in lifting, in carrying, in supporting a load, in raising an arm for throwing or for swinging a club, and how the body remains at equilibrium in the positions variously conditioned by these muscular activities. Leonardo might well have been the first to institute investigations on the statics and mechanics of the human body. He directed his pupils to study, as did the ancients, the various movements of the human body in the fencing room, and he even wrote a scientific treatise on the art of fencing. To grasp correctly the involuntary movements, however, such as are expressive of pain, of joy, of fright and of other emotions, he advises the young artist to mingle with the common people, among whom the emotions are revealed unrestrained in the

facial expression and in the gesture.

When engaged upon his equestrian statue, he felt impelled to extend his anatomical investigations to the horse, and his efforts to build flying machines for man induced him to delve into the anatomy of birds and their mechanism of flying. Thus he entered upon the field of comparative anatomy.

The following note gives an insight into the method he pursued in studying and teaching anatomy: "I wish to demonstrate the difference between man, the horse, and other animals. I begin with the bones and follow these up with all those muscles that attach themselves to the bones without tendon and then those that are provided at each end, or one end only with a tendon. I am going to give in full detail the anatomy of the leg as far as the hip, and show the various arrangement of muscles, veins, arteries, nerves, tendons and the bones; the latter must first be sawed through in order to ascertain their thickness." Are we not led in these words to believe that we are attending the lecture of a professor of anatomy of today at the dissecting table?

But his interest also turned to the widely differentiated plant world. With the eye of an artist he investigated form, arrangement and distribution of the leaves and the branches of trees. He sought to probe into conditions necessary to the life of plants, and to demonstrate their specific nurture. He traced back to the quality of the soil the more or less vigorous development of the bark of a tree; he knew that in wet years the annual rings were thicker than in dry years; he explained that the varying distance of the rings from the centre was due to the north and south position of the tree. He even conducted experiments on feeding plants artificially through the bark.

Mysticism, which at that time still surrounded alchemy, seems to have kept him aloof from that science. But as military engineer it behooved him to know about the making of explosives and inflammables,

⁴Leonardo da Vinci—His Scientific Research with Special Reference to his Investigations of the Vascular System. Arnold C. Klebs. *Bost. M. & S. J.* 1916.

and as bronze founder about the apportionments used in alloys. He did not disdain to give his pupils exact directions about mixing colors and preparing durable varnishes.

But we are more than ever astonished at Leonardo's keen ardor for pure mathematics and mechanics, which, according to our modern point of view, are so remote from all artistic interests. Numerous calculations and geometric figures on the margins of his sketching sheets attest with what predilection he toiled over the solution of abstract mathematical problems, and both algebra and geometry owe to his efforts valuable enrichment. Mechanics, the master called the paradise of mathematical science.

The magnificent Gothic cathedrals with their heaven aspiring steeples are a most brilliant testimony to the skill of the medieval architect in conquering mechanical difficulties. In many branches of industry there was no dearth of ingenious machines. As architect, Leonardo must have been familiar with the mechanical expedients of his time. With what amazement do we read how, in his youthful ardor, he offered to raise the lofty tower of the Church of St. Giovanni^a from its foundation and to dig a commodious navigable bed for the torrential Arno. Despite similar wonderful achievement of enterprising men, the whole of medieval mechanics was pursued according to artisan tradition and nobody was concerned about scientific reasons. The understanding of the fundamental problems of mechanics and hydrostatics already solved by Archimedes (287-212 B. C.) had become extinct in the Middle Ages. The credit for having again paved the way to a rational treatment of mechanical problems, and for having stated correct views about simple machines one hundred years before Stevinus is incontestably due to Leonardo. Penetrating deeper and deeper into the spirit of mechanics, Leonardo discovered the laws of inertia and motion and thus laid the founda-

tion for mathematical physics which enabled Galileo (1564-1642) and Newton (1642-1727) later to investigate the motion of heavenly bodies and to extend our knowledge of phenomena from the earth to the remotest visible stars in immeasurable space.

With veritable zeal the master plunged into the practical application of his mechanical knowledge and gave his inventive mind full rein. Observing that cotton eagerly absorbed moisture he attached equal weights of cotton and wax to a small balance in order to prognosticate the coming of wet weather; thus the first hygrometer, so important meteorologically, came into existence. Navigators as late as the fifteenth century estimated sailing distances by the eye and in most books on navigation the erroneous opinion has been circulated that the log was not in use until at the end of the sixteenth or the beginning of the seventeenth century. The first mention of the log, according to Humboldt, occurs in Magellan's journal in 1521. Since Leonardo in his "Codex Atlanticus" gives an account of such a distance measuring apparatus for ships, it is quite possible that navigators are indebted to his inventive genius for the instrument so important for the knowledge of ocean currents.

Of his many technical inventions may be mentioned the wheelbarrow ascribed to Pascal (1623-1662, *brouette*) by the French; u-shaped chain links (Vaucanson, 1709-1782); the well-known and much-used spiral door hinge for automatically closing a door; a smoke-jack; looms, spinning jennies, cloth-cutting and cloth-washing machines; well-boring machines; rollers for embossing iron rods; power planers and saws; a file-cutting machine; and a stone saw (still in use at Carara). He is said to have drawn the plans for thirty mills, and sketches have come down to us of suction and force pumps, of water wheels and of hydraulic presses.

^a Florence

In the "Codex Atlanticus" he mentions the important function of the air in burning and in breathing. "Wherever a flame occurs it creates a current of air; this current serves to increase and maintain the flame. A strong current intensifies the brightness of the flame. Fire unintermittently destroys the air which feeds it, and creates a vacuum if other air cannot follow to fill the same. *As soon as the air is not in proper condition to sustain a flame, no creature on earth can live in the air any more than the flame.*" (A prediction that air contained a gas indispensable to life.)

With these facts in mind, he devised the lamp chimney, usually traced back to Philip de Girard (1804). From his knowledge of the physical properties of the air—weight, elasticity, density—emanated a swimming belt, a diving apparatus, various flying machines for man, imitating the flying of birds, and three hundred years before Lenormond's performance (1787) Leonardo^{4b} had drawn a parachute and given adequate dimensions for safety.

As military engineer he strengthened the walls of fortresses to adequate the increased capacity of the guns, and gave complete plans for the construction of ravelins, the laying of mines, and the use of storming machines. He cast cannon of various forms and sizes, and built revolving mitrailleuses (machine guns). He calculated not only the capacity of his guns but the path of the projectile, and expounded minutely the difference in effectiveness of stone and lead balls. He constructed a steam cannon, his 'architonitrus,' a contrivance of copper that, by means of steam with loud roaring, "hurled its projectiles afar."

Besides his treatise on painting, a work on hydraulics has come down to us. The first sections contain the theory of hydraulics and treat of the physical properties of the earth and of water, the formation of

the clouds, the laws of equilibrium of liquids, the changing velocity of water in various altitudes according to the nature and declination of the soil, and, finally, he discusses waves, whirls and other questions concerning moving water. Long before Newton (1642-1727), Leonardo recognized the nature of wave motion, conceiving the wave as the consequence of an impact under which the water does not leave its place. There is great similarity, as he says, between the waves of water and the waves caused by the wind across a grain field, which waves we see moving onward while the grain remains stationary. This striking example is still contained in the majority of our books on physics. To prove that the motion of the water progresses vertically and not horizontally, he cast a straw on the ripples caused by a stone falling into the water, and showed that this was raised and lowered by the waves but was not carried onward. "In the same manner," Leonardo continues, "sound waves emanate in circular motion from their origin. Where there is no air and no instrument to cause its motion, there is also no sound." In accordance with this point of view and corresponding to the present status of the science, he attempted to measure the distance of the source of sound by the time required for the sound to reach the ear.

In the last four sections the author arrives at the practical application of these theoretical studies, enumerating the causes for the breaking of dams, and proposing procedures for preventing and repairing. Then he speaks of the best process for draining swamps and of covering with fertile humus such areas as are despoiled of their soil by floods. He further explains the best form for a canal with references to the supply and discharge of masses of water and the effect of the latter on the bottom and walls of the canal, and demonstrates how through the form of the bed and

^{4b} A model of his flying machine is in the U. S. Army Medical Museum, Wash., D. C.

the direction of the current, whirlpools, underwashings and sandbanks are conditioned. The treatise closes with detailed specifications on the irrigation of arid regions, calculations on the amount of water a canal can accommodate in a given time, according to the elevation of the water supply, the rapidity of the current, the canal form, the declination and the size of the several discharge openings, besides other problems concerning the judicious distribution of water.

This replete experience the master gathered largely while building the canal of Martesana. As has been mentioned before, Leonardo, during his sojourn in Florence, intended to make the river Arno, which was impassable on account of its rapids, navigable so that it might conduct the swift stream through the swamps of Val d'Arno to the sea. With the building of the canal he associated the idea of reclaiming the barren plains of Prato and Pistoja by means of the vegetable mud to be gathered in reservoirs for the purpose. According to Pliny, the Etruscans had made use of the vegetable sediment of rivers for such purposes and a similar procedure is chronicled in the Tuscan annals of the twelfth century. But Leonardo was undoubtedly the first to lay down such a plan according to scientific principles. There is an outline of the project in Paris, and Viviani, a pupil of Galileo's, who established the connection between Florence and Pisa two hundred years later, departed from Leonardo's original specifications to his own disadvantage. Unfortunately, it was not granted Leonardo to execute this grand piece of work in his own country. Ludovico Moro knew better how to exploit the technical commission of confining the unruly Adda to her rocky banks and of conducting her turbulent waters to the walls of Milan. After the master had prepared himself in the idyllic quietude of Vaverola by the study of older canal structures, he entered sturdily upon

his arduous task and completed the difficult stretch of the Martesana canal from Brivio to Trezzo in the year 1497. Milan owes in no small part the fertility and the verdant vesture of her fields to the irrigation made possible by these water works, and Leonardo's efficient work became a source not only of imperishable glory to the land that had given him a hospitable reception, but also one of material prosperity to himself.

During the excavation of earth from his canal channels, Leonardo observed the various strata of the earth. The finding of petrified muscle shells and plants incited him to geological studies, the results of which he collected in far-reaching theories about the structure of the earth. The most erroneous opinions obtained at that time concerning the numerous petrifications on the west slope of the Apennines and in the southern Alps. Did not Scilla as late as 1670 feel constrained to rise against the opinion that fossils originated from the wonderful influence of the stars? Leonardo recognized long before Fracastoro (1517), Bernard Pallissy (1563) and Nil Stenson (1669) that petrifications were no miracles of nature, but the remains and attests of an era in creation long past and, as it were, in presentiment of a philosophic division of animals according to structure, he even calls conchs "animals which have their bones outside."

The process of petrification he presented to himself as follows:

When turbid river water deposited its sediment in the sea upon the animals which inhabit the coast, these animals were covered with this mud and had to perish under its load from the lack of their accustomed sustenance. As the sea had gradually receded and the saline waters had drained off, the mud petrified and the shells of the molluscs remained filled with petrified mud in the place of the perished animals. Accordingly all such shells occur between two stones, the one that surrounds them, the other that they enclose. Nearly all petrified shells in

the rocks of the mountains present the natural shell on the inner side, especially those that were already old enough and were preserved by their hardness; with the younger shells that were largely permeated with mucous substance, only the calcified portions became petrified. Those animals, however, that had their bones under their skin and were enveloped with mud away from the usual river bed, were immediately penetrated by this mud which displaced their muscles and viscera and left only their scattered bones.

But if anyone should assert that petrified shells have been produced in the mountains by nature under the influence of the stars, how can he explain that such an influence could generate in the same place shells of various kinds and sizes and of different ages? And how could he explain to me the stratified hardened sand at different altitudes in the mountains? This sand was carried there from different regions by river currents and is nothing but shattered stone that has lost its corners by the continued rolling, the numerous jostlings and hurling in the current of the water which has carried it to this place. How can any one believe that under the influence of the stars the numerous varieties of leaves were fixed and impressed in the rocks of the mountains and algæ, and sea-weeds mingled with crabs and shellfish of the sea were petrified in one mass?

The sea changes the structure of the earth and the molluscs that lived in the mud of the sea testify to the mutations the earth has undergone. Large rivers always carry with them earth which they wash from their bed by friction. This erosion permits us to discern many mollusc banks enveloped in diverse beddings. The molluscs formerly lived in the same place where the seawater stood over them. In the course of time these banks were covered with mud at various depths and the molluscs gradually enclosed as the water receded. Today these bottoms have grown to the heights of hills and mountains. The rivers eat into them and again uncover the mollusc banks.

Like Cuvier (1773-1838) Leonardo holds that valleys are erosions caused by draining water:

When a river forms mud mounds or sand banks and then leaves them, the water that has unburdened itself of these masses shows us the manner in which mountains and valleys could gradually have been carved from the terrain that rose from the bottom of the sea nearly full and uniform.

The brilliant discoveries of the Spaniards and the Portuguese fall into the very height of Leonardo's scientific activities. With the universal concern with which the old world followed the bold voyages of the conquistadores it need hardly be mentioned that he too advanced a keen interest toward geographical research. Moreover, the learned geographer, Amerigo Vespucci, was his countryman and personal friend. Even though an unbiased critic pronounced against Leonardo's authorship of the oldest map of America now in London, nevertheless there are preserved indisputably genuine cartographic drawings by him of Europe and of several parts of Asia Minor bordering on the Mediterranean, besides topographical descriptions of the valley of Chiavenna, Valteline, and others where he had been engaged on hydraulic works. Soon after the discovery of America, referring to St. Augustine, who had denied the possibility of the antipodes, he calls attention to the fact that even highly respected authors can be in the wrong.

From the earth, Leonardo turns his searching gaze toward the starry heavens. Although since the days of the Pythagoreans there existed among the astronomers a vague intuition as to the spherical form of the earth, and conjectures gradually loomed up concerning her suspension in space, her motion, and her attraction, such points of view up to the time of Nicolas de Cuss, Copernicus, and Galileo remained the property of a select few only, and to have enunciated them publicly would have incurred danger, because of the high regard for the church, which clung to the world order of Ptolemy.

Leonardo was so convinced of the spherical form of the earth as to believe that fourteen (Italian?) miles out at sea would make it manifest to the naked eye. The bluish glimmer with which the moon's disc becomes visible in the early days of a new moon, Leonardo attributes to the reflection of the sunlight from the ocean and in several instances compares the moon with the earth:

The earth probably appears to a human being on the moon or on a star like a heavenly body. To man on earth the moon appears exactly as the earth would appear to the inhabitant of the moon. The earth is not situated in the center of the sun's orbit and all the less in the middle of the universe. It is in the midpoint of the elements that have been assigned to it or are dependent upon it.

That teachings of this sort, one hundred years before the sentencing of Galileo, drew down upon their author the opprobrium of being designated as an heretic seems credible indeed and his enemies did not let the opportunity escape them to make life miserable for him in Milan. This may be one of the reasons which induced him, in 1499, to bid adieu to that city where for ten years he had been respected and had wrought blessings.

If Leonardo had pursued all these various branches of learning in the quiet of a student's life, we could hardly withhold our admiration. But in the midst of balls and public spectacular displays he began his treatises on painting, geometry, and mechanics. While he was busy on one of these pageants for the wedding celebration of Giovanni Galea Sforza and Catherine of Aragon, in 1499, he began his studies in optics, and under his collaboration, the famous work of his friend Paciola "*De Divina Proportione*" took shape.

At the marriage of Ludovico Moro with Beatrice d'Este, he gave the wedding festivities a setting on a sumptuous scale, decorated the marriage contract with miniatures, and adorned the ducal palace for

the young princess. The next year (1500) there was a recurrence of festivities at the marriage of the Emperor Maximilian and Bianca Sforza. On this occasion the equestrian statue, begun ten years earlier, was set up to public view. The next year (1501) he took a trip to Pavia, in order to perfect his knowledge of anatomy with Antonio della Torre. Returning to Milan, he used the following year in the difficult construction of the Martesana Canal. In the interim, he found time to build a bath in the palace garden for the youthful princess. He personally selected the red marble for the facings, the white marble for the solium (bath basin), designed the mosaic floor in mythological subjects, and drew with his own hand the hot and cold water bibbs. To this period belong his participation in the erection of the cathedral of Milan and the completion of the magnificent Lord's Supper in the Church of St. Maria della Grazie. His notes record in addition a series of artistic achievements.

The years between 1499 and 1502 he passed with short interruptions at Florence in the company of Paciola and Salai. In the summer of 1502 he was called as military engineer to the court of Caesar Borgia, the son of Pope Alexander VI. This took him away from his easel where he had worked for four years (not steadily) at the picture of "Mona Lisa," and hurried him to the rampart of a fortress where he pointed the guns upon the line of the attacking foe. His notes show how, in the din of war, he found leisure for scientific consideration. On July 30, 1502, in Umbria, he drew a dove-cot; on August 1, in Pezzano, some agricultural implement; on August 8 he expressed surprise at the harmonious cadence of water pattering in the public fountain at Rimini; on October 11, at Cisena, he sketched the plan of a villa and described a cart of his invention and of other implements for gathering grapes; on September 1 he constructed the bridge

of Cesenatico. In Piombino he speculated on the beating of the waves and in Sienna a remarkable bell gave rise to studies in acoustics.

In Sienna the honorable call of the Signory of Florence to decorate the court room reached him, and we soon find the master in contest with Michael Angelo on the

machines. Dissention with Michael Angelo drove him from Rome and, when Francis I, after the battle of Marignan, entered Milan, we find Leonardo on the side of the victorious French king. He accompanied the king to Pavia and to Bologna and served him then and thereafter in elaborating pageants for state and domestic occasions.

In the fall of 1516, already advanced in years, which seem to have made no inroads upon his physical and mental vigor, the master, accepting an invitation of Francis I, went to France. Here he was assigned a permanent residence in the little palace of Cloux (now Clos-Lucé). From this position he accompanied the king on a hunting expedition to Sologne, where he formulated the resolution to construct the canal of Romorantin for the purpose of irrigating this barren region. Hence we find in this period the draft of this canal delineated by the master's own hand to the utmost detail, even to the very flood-gates. This canal was constructed later on by Meda in conformity with Leonardo's original plans. At Cloux, where Leonardo was surrounded by his faithful friends, Salai, Villanis and Melzi, he passed away, May 2, 1519.

This short sketch of Leonardo's activities gives an insight into a fertility of mind, a superabundance of ideas, and a multifariousness of interest that seem almost incredible today. But to appreciate fully the scientific significance of this mighty mind, it is essential to keep in view the condition of science at his time. Humanity could not divest itself of the medieval trend of thought. Not only was there a dearth of material, because the collection and systematization of experience and experiment had been wilfully neglected, but there was also a total absence of method, as the fallacious way of thinking under the ban of scholasticism was incapable of providing proper digestion of the results of observation. By the aid of the knowledge treasured in the



MONA LISA (Wife of FRANCESCO DEL GIOCONDO)
By Leonardo da Vinci—Louvre, Paris.

famous cartoon of the Battle of Anghiari which was finished in 1507. After taking Geneva, Louis XII of France asked for the services of the master in Milan where, in the friendship of the all-powerful minister, George d'Amboise, four happy years were dedicated to science and art.

At the departure of the French in 1511, Leonardo, together with the two Melzi, Salai, Lorenzo, and Fanfajo went to Rome. Here, in addition to his painting, he was wrapt up in the construction of flying

ancient classics and their beaten paths of philosophical thinking, society gradually awakened and emancipated itself from the fantastic conception of the Middle Ages. Italy, the virgin soil of classical culture, naturally furnished the starting point for the new movement and, although disunited within and politically powerless beyond her confines, she enjoyed during this period of transition the uncontested leadership over the rest of the occident.

In the very nature of events, literary culture preceeded artistic culture. Dante, Petrarca and Boccaccio were followed by Leonardo da Vinci, Michael Angelo and Raphael. Natural science, associated with the name of Galileo, did not join in until later.

With the literature and art of classic antiquity, ancient superstition also revived and entered into a pious pact with Christian mysticism. Up to the sixteenth century humanism claimed the best powers of that highly gifted nation and, during the most flourishing period of Italian art, the phantoms of astrology and alchemy reigned supreme in the realms of natural science. Leonardo was one of the first in the age of the renaissance to undertake a philosophic organization of the empiric knowledge of nature. With comprehensive insight he associated the most heterogenous phenomena under a common viewpoint: Upon the rippling of the water from a falling stone, he founded a theory of sound; from the effects of running water on the forms of his canals, he deducted an ingenious hypothesis on the configuration of the earth under the agency of rivers. Two favorite problems of his time, the squaring of the circle and perpetual motion he combated with scientific reasons.

Long before Bacon (1561-1626), usually pointed to as the father of natural science, Leonardo entered upon the path of induction and made experiments with the avowed purpose of discovering physical facts. And while the (English) Lord Chancellor him-

self remained unproductive in the field of natural science and could never fully extricate himself from the mysticism of his time, the efforts of Leonardo, who went to work with a more open mind and with superior mathematical knowledge, were crowned with enduring success. Leonardo extols experience as the foundation of all human knowledge: "*For experiment never deceives, it is only our judgment that goes astray, when we make deductions not inherent in the former.*" The reproach of not being able to quote authorities for his statements he met by saying: "It is of greater value to cite experiment, the mistress of all masters, as an author; for he who repeats the assertions of others, plumes himself with foreign feathers." In another place he avers: "There is no certainty in the sciences in which mathematics are not applicable in some forms at least or which is not dependent upon it in certain respects."

While Leonardo never took any active part in politics, he did not omit to jot down certain remarks on state craft in the spirit of his famous countryman, Machiavelli. In addition we find scattered throughout his manuscripts linguistic and poetic attempts and observations on ethics and philosophy.

We do not admire Leonardo's labors in natural science simply because they are the leisure-hour creations of a great artist; they are of momentous importance for the history of the physical contemplation of the universe. For the reasons already stated, they did not come to proper notice even among the specialists. Alexander von Humboldt in his "Cosmos" rendered the genius of Leonardo deserving appreciation when he said: "*The greatest physicist of the fifteenth century, who combined excellent mathematical knowledge with a most admirable insight into nature.*"

Leonardo da Vinci was a contemporary of Columbus; he died three years after him. Meteorology occupied the glorified artist as much as hydraulics and optics. He was

influential during life through his great works of art and through his inspired conversation, less so through his writings. If the physical views of Leonardo had not remained buried in his manuscripts, the field of observation which the new world offered would already have been scientifically cultivated in many directions before the great epoch of Galileo, Pascal, and Huygens. Like Francis Bacon, and a full century before him, he considered induction the only sure method in natural science. In Leonardo's own words, "We should begin with experiment and by means of this discover the reason."

When Leonardo made his appearance, a deep rooted mysticism still luxuriated in all branches of natural science; but as with mailed fist he shattered the old forms of art and substituted more perfect ones, so he also unfettered the free flight of thought and in clear, unprejudiced thinking out-stripped his contemporaries by centuries. His scientific importance, therefore, lies less in his numerous mechanical inventions in which he simply utilized in his own way what already existed, but rather in his truly inspired, modern way of thinking and deducing through which he correlated his manifold single observations into a unified whole. Since antiquity tendered him no significant advantages in ways and means, Leonardo stands entirely on his own feet in the realm of contemplating nature and in drawing conclusions from her. As in art, so also in science, Leonardo shines forth as one of the most potent autodynamic human elements of the renaissance.

To the student of conditions that produce or may lead to the production of human genius, the works of Francis Galton, Wilhelm Oswald and DeCandolle may be presumed to be familiar. Not so the statistical and historical researches of Casper L. Redfield of Chicago, Illinois.⁵ This investiga-

⁵ Redfield, Casper L.: *Dynamic Evolution*. New York: 1915.

tion gives the evidence that intellectual superiority can neither be produced nor maintained when generations succeed each other rapidly. He also establishes a new biogenetic term, namely "birthrank" by which he means to express a man's inheritance when measured by the age of his father at the time the son was born. It is determined by taking the difference between the dates when the father and when the son was born. This figure is placed behind the name of eminent men in Redfield's collection. For example: Washington (38) means that George Washington was born when his father, Augustine Washington was 38 years old.

Redfield⁶ gives the names and parts of the pedigrees of 571 eminent men, in 222 of which the pedigrees are extended for two or more generations. There are 860 individual birthranks averaging 40.70 years and 168 birthranks which are undivided because intermediate dates are unknown, but which average 40.67 years each. Thus the deduction appears justified that these great men were produced by fathers who averaged over 40 years of age at the time when their eminent sons were born.

Redfield further gives proof that intellectual superiority can neither be produced nor maintained when generations succeed each other rapidly, i.e., rapid breeding inevitably and necessarily leads to the production of inferior stock (in man and animals) and slow breeding is essential to the production of superior stock. These conclusions are based on many generations in those animals that are most profitable to mankind, namely, race horses, milk cows and hunting dogs, but are directly applicable to man, as is at least partially born out by the author's investigations. Notice, for example, the birthranks in such well-recorded families of great men as those of Johann Sebastian Bach and the Bernouilli.

There is, however, an important difficulty

⁶ Redfield, Casper L.: *Great Men and How They Are Produced*. Chicago: 1915.

about this method of prognosticating the production of genius, namely, the scarcity of reliable family histories, which become more and more obscure the more remote the birth of the great man is from our own time. This is particularly regrettable when the particular genius was an illegitimate son, as in the case of Leonardo da Vinci. I have found it impossible to ascertain who this peasant woman, "Catarina," alleged to be his mother, really was. To this is added the intentional secretiveness and confusion that accompanies the birth of most illegitimate children and hence the willful falsification or even destruction of any record. It is also not ascertainable with exactness what the ages of Leonardo's parents were at the time of his birth.

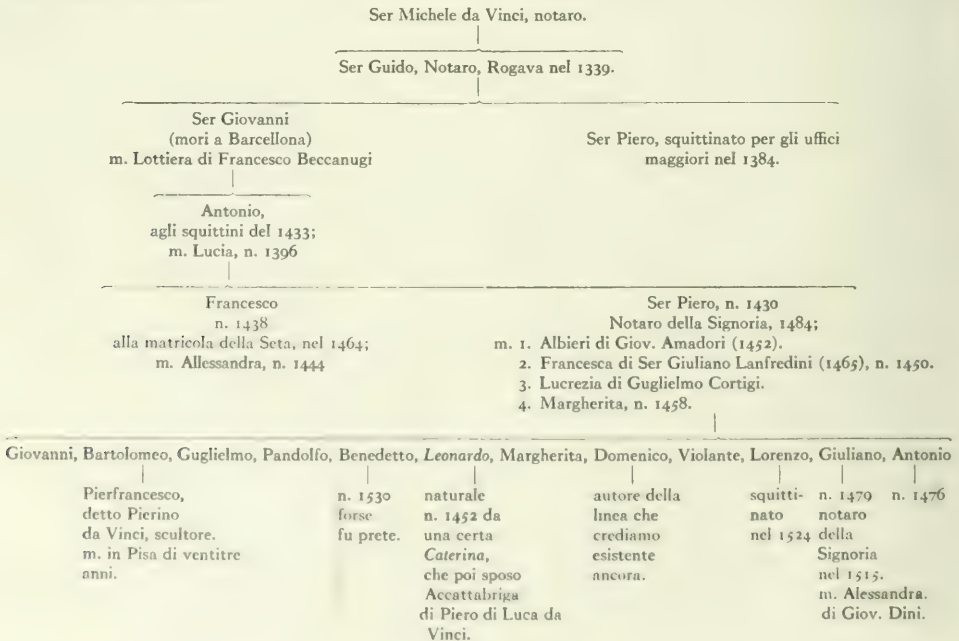
Dr. Albert Raibmayr⁷ states that artistic disposition, when carried on by the female line, may remain latent for generations and thereby become lost for biographic

⁷ Raibmayr, Albert: Die Entwicklungsgeschichte des Talentes und Genies.

investigation. If the maternal side is the only representative of an extinct male talent or family, which has become so lowered in human fortunes that every family tradition is effaced, then biographical investigation is futile. Thus, it may appear that the products of a talent or genius, suddenly reappearing as the offspring of a comparatively unknown and untalented mother, appear in history as if "snowed down from heaven." He claims that the genealogy of Leonardo represents not only a mixture of social stations, but also a mixture of nations. That he was a result of national mixture, I state on the evidence of Woltmann⁸ who, upon the basis of iconographic evidence, states that Leonardo was the result of a mixture of Germanic and Etruscan blood.⁹

⁸ Woltmann: Die Germanen und die Renaissance.

⁹ I append Leonardo da Vinci's Tree as far as it is given by Felice Turo in "Leonardo da Vinci e la Sua Scuola," i, Milano, 1857.



The demonstration of the inheritance of an artistic predisposition is entirely lacking, in the records and works I have thus far quoted. Also lacking in Felice Turo's genealogy of Leonardo da Vinci.

In Leonardo, the artistic emotional side makes up the most important constituent of his inheritance and as feelings and emotions are generally believed to be inherited from the maternal side, we are directed to his mother as the principal donor of his talents. Although his mother is reported to have been a peasant girl, or servant, nevertheless we must seek in her the predominant donor of his artistic genius. That this genius could not have resulted from paternal inheritance is proved by the fact that his father had four other wives—Albieri di Giov. Amadori, Francesca di Ser Giuliano Lanfredini, Margherita and Lucrezia di Guglielmo Cortigi—by whom he had numerous children, by some stated as many as eleven, none of which showed any artistic talents.

We know nothing of the genealogy of Leonardo da Vinci's mother, not even her parents, and certainly nothing of her ancestors. All doctrines of inheritance leave us without aid and we can only help ourselves with the hypothesis that such a colossal genius manifesting itself in earliest youth must be assumed to have had an ancestry of long-continued organic breeding, which must have extended into several preceding generations.

Mysterious as Leonardo's mother must remain, the only hypothesis that gives satisfaction is the one that explains her as being the female surviving line of an old extinct masculine line of genius which had sunk into the lower ranks as a consequence of many national and domestic catastrophes. However, all of these inimical forces could not extinguish the germ plasm of genius of that secret family. Leonardo's mother was a descendant of an Etruscan. In this nation numerous talented families

occurred throughout antiquity; but this same nation experienced numerous political catastrophes which forced the upper stratum of society down into the lower stratum.

In the ancient archives of Florence there is an old and well-authenticated register which served Signore Dei for investigating Leonardo's genealogy. There is no evidence in his investigation that he was able to procure any documents proving that da Vinci was subsequently declared legitimate, which from various circumstances appears to be extremely probable. This register states that Leonardo da Vinci was seventeen years old when his father was forty; therefore, Leonardo's father was twenty-two or twenty-three years of age when his illegitimate son was born. This is rather a striking exception to the general results of Casper L. Redfield's patient study, which would indicate that great men, in the majority of cases, are the sons of fathers who averaged over forty years of age at the time when their eminent sons were born.¹⁰

There appears to be a regrettable difference of opinion among Leonardo authorities concerning the age at which Leonardo died. The most reliable figures for birth are 1452, and of the death, 1519. This would make the year 1919 the four-hundredth anniversary of his death, which indeed has already been commemorated by an admirable exhibit of his works at the Boston Public Library on May 2, 1919.

When important events in the life of a great man are stated in such a contradictory manner by various authorities, it behooves the modern critical investigator to subject the records of the lives of these men to a most scrutinizing analysis, to test them against each other by collateral reading, and to look up personally the original documents and registers in the libraries and churches of the cities in which these geniuses spent most of their time.

¹⁰ Redfield, Casper L.: Testing Facts and Theories of Heredity, *Chicago M. Rec.*, July 20, 1918.

Just as we find in Plutarch the authority for the biographies of the great men of the ancient Roman periods and Herodotus as an authority for the historic records of antiquity, so we find Vasari handing down to us the lives of the great artists of Italy in a very comprehensive work, which stands in the front rank of historic art literature. Giorgio Vasari had the advantage of contemporaneous information. Most editions of da Vinci's writings are preceded by a short biography, as a rule, copied word for word from Vasari. Another original biographer of Leonardo is Signor Carlo Amoretti,¹¹ librarian of the Ambrosian Library at Milan.

In order to test the validity of Vasari's statements, I have compared them with many obtainable writers on art of his day, but perhaps as important an approval as can be desired is furnished by Schlosser¹² in the following words: "The warmth, fidelity and vividness of his presentation assured to them the interest of all times, although individual statements might be subjected to criticism."

Now Vasari states the following, concerning the death of Leonardo:

¹¹ Amoretti, Carlo: *Trattato della Pittura*. Milan: 1804. This account is found in the introduction entitled *Memorie storiche su la vita, gli Studi, e le Opere di Leonardo da Vinci*.

¹² Schlosser: *Weltgeschichte*, ix, 429.

At length, seeing himself near death, he confessed himself with much contrition; and although he was unable to stand, he desired his friends and servants to support him, that he might receive the holy sacrament out of bed in a more reverent posture. When fatigued with this exertion, the King came to visit him, and Leonardo, raising himself up in his bed out of respect to his Majesty, began to relate the circumstances of his illness, and the wrongs he had done both to God and man, by not making better use of his talents. In the midst of this conversation he was seized with a paroxysm, which proved the messenger of death; on seeing which, the King hastened to assist him, and supported him in his bed, in order to alleviate his sufferings. But his divine spirit, knowing he could not receive greater honour, expired in the King's arms in the seventy-fifth year of his age.

In spite of this statement by Vasari, we cannot correctly assign a greater age than sixty-seven years to Leonardo. He died on the second of May, 1519. His goodness of heart is proven by the stipulations of his will, giving to his brothers the money he had deposited in the Hospital of Santa Maria Nuova at Florence. These very brothers had contested his right to be a recipient of the estate of his father.

There were giants in the earth in those days, and also after that, when the sons of God came in unto the daughters of men and they bear children to them, the same became mighty men which were of old, men of renown.¹³

¹³ Genesis vi, 4.

SIR WILLIAM OSLER

By D. A. WEBB, M.D.

NEW YORK

IN sorrow though in pride this Society¹ would pay its humble tribute to the memory of a distinguished member of our profession. That memory is not for metropolitan cities and learned medical societies only, it is the proud heritage of every physician in the land be he ever so humble, as it should be of all who profess a solicitude in the uplift of their brothers. The life story of him we mourn to-night may well prove a benediction to those in the daily grind who seek equanimity of soul. The application of his teachings is not restricted to the confines of our profession. In the catholic sweep of its utility it embraces all weak, struggling men. His message is one not of visionary precept but of practical merit in that it was honoured by observance in life and was to him the solace and comfort it would fain be to others. It is a message of superlative wisdom such as is vouchsafed to few mortals, and to fewer still to be exemplified as in the life and teachings of William Osler.

We come to Osler not as did Anthony to bury nor even to praise him, we come as suppliants to learn the source of that wisdom which made him the Socrates of our craft, the beloved among men. His attainments in science will not answer our query, nor will his literary skill; methinks we find it in his kindly human self who can be written down as one who loved his fellow man. More than other endearing qualities that was his open sesame to the hearts of men, and because of it, in his ripe years with his sun westward turned, he was called to stand before kings.

A great man has been defined as several men in one. Others may discover more, I find in Osler three, the man of science, the

man of literature and the man of philosophy. It is a happy combination especially for the the physician. Prof. Welch, a colleague at Johns Hopkins University, says Osler's work will guarantee him a niche in the world of medicine. Osler was a great observer. His were the days and methods of Darwin, experimental medicine coming later. The pathological, not the chemical laboratory was his haunt; Virchow, his teacher. Someone has described his medical school as a morgue, an open body upon the table, Osler at one end and a student at the other with fellow students hanging about for words of wisdom dropped by the Oracle. He trained long and faithfully in America and in Europe. His unusual powers of observation made him a good diagnostician. His success as a man of science was determined by complex and diversified mental qualities and conditions. Of these the most important were his unbounded patience in observing, and in collecting clinical data, and good sense in making deductions. Even with moderate abilities those habits of industry will place a man above the common herd; in addition he did not suffer distraction nor waste time "making money." Not brilliant genius, not special inherited gift, not a concatenation of luck and good hits,—but the master word work did the trick. With him the one prudence in life was concentration, the one evil, dissipation. He himself says he was the man of but one talent. The achieving life is the life of sacrifice.

He might have excelled as a man of letters had he been less devoted to the study of medicine. Much of the charm of his textbook is due to its elegance of diction. An insatiate reader he lived much in the

¹ Read before the Lackawanna County Medical Society, Scranton, Pa.

atmosphere of Roman and Grecian minds; from them he got the foundation upon which he erected his edifice of equanimity. "De Senectute" was an appreciated gift at the testimonial dinner in 1905. He was too wise to tamper with poetry, the prerogative of mental extremes, but he was familiar with the best in English literature, as his writings prove. In 1919 he was president of the Classical Association in England. His accurate observations he described accurately; words were the guardians of thought. He endeavoured as did Aristotle to pass down to posterity the saving philosophy of his idol and ideal, Plato; hence to secure for his message permanency, he was carefully apt in the nuance of words. The remarks of Trench on words here apply:

Man feels that nothing is properly his own, that he has not secured any new thought or entered upon any new spiritual inheritance till he has fixed it in language, till he can contemplate it not as himself but as his word; he is conscious that he must express truth if he is to preserve it, and still more if he would propagate it among others.

"Oslerisms" were bulky thoughts condensed into brief, comprehensive terms. I do not think he caught them on the wing; he needed them, and their pregnant coinage shows selective care. What intelligent acceptance of Darwin's speculations would the world in general have made except for a few happy phrases as "the survival of the fittest," "the process of natural selection," "the struggle for existence?" And men will want to know the meaning of "Consume your own smoke," "Put your affections into cold storage," "Live in day-tight compartments," "Undress your soul at night." Then they will read Osler to the end and learn his *philosophia vitæ*. Trench's observation again applies:

The single kinglier spirits that have looked deeper into the heart of things have oftentimes gathered up all they have seen into some one word which they have launched upon the world

and with which they have enriched it forever making in that new word a new region of thought to be henceforth in some sort the common heritage of all.

And so, precise and concise language was the amber in which Osler safely embedded and preserved his most precious and subtle thoughts, and had the clothing, not the clothed, been his chief concern his skill as a physician might have been excelled by his art as a literateur.

Osler, the man of science, belongs to the profession of medicine, but Osler the philosopher, elludes our grasp and sallies forth into the world's arena to find an audience commensurate with his message. His theme is for all men, its age, that of the eternal hills, its sanity, conceded. Some of it antedates Christianity though not antagonistic to it. It found thought and saw life in Plato, was crystallized, into words, at least, by Shakespeare, and saw its best exemplification in the thought word and deed of the Nazarene. As lived and taught by Osler it has for present day usage the compelling charm of fraternity, a stimulus not merely to aspiration but indeed to action. It activated him and developed his fine poise.

He did not come by his equanimity without effort. The essays "Science and Immortality" and "A Way of Life" searched his soul. I doubt not that in the wrench that was his from the divinity to the medical schools in Canada he saw life at a different angle, but he also seemingly felt that the spiritual moorings of his early manhood should not be surrendered without a *quid pro quo*. He experienced himself what he warned against in others, the conflict between reason and emotion, but neither in this particular instance nor ever in his teaching does he treat regulated emotion as not befitting a man. He was not a disembodied intellectual being, he was a composite human one, and behaved like one, with human limitations. One can gather

from the summing up of his *Confessio Fidei* that the *chordæ tendinæ* to the old Anglican faith or to any faith were near the snapping point; men more indifferent would have thrown overboard those filial ties but Osler could not, I think, would not, entirely shake off his boyhood teaching. His artistic and serious soul did not thrive on the cold colourless data of scientific fact; science alone left a void in his soul no less than in his heart and he believed in nourishing both. Witness his commiseration for Huxley in the chasm of his spiritual void. One does not quote so frequently and so learnedly from the Bible as does Osler without leaning heavily upon it, consciously or not.

The evidence of order in the sequence of natural phenomena compelled recognition of a guiding Supreme Intelligence; and scientist though he was, the study alone of the phenomena was not a substitute for the reasonable acceptance of that Intelligence. With Francis Thompson in the poem "The Hound of Heaven" he too probably could testify that:

I tempted all His Servitors but to find
My own betrayal in their Constancy
In faith to Him their fickleness to me.

In his discussion on immortality he classifies men into Gallionians, Laodiceans and Thesians. Writing in the third person he did not commit himself. If anything, he was a Gallionian, certainly not a Laodicean, and though he distrusted their sanity he wrote approvingly of the Thesians. He yearned for something to cling to but not as one in a wilderness. He cites Tennyson:

Gone for ever! Ever? No—for since our dying
race began,
Ever, ever and for ever was the leading light
to man.

He would not remain in the sad quandary, common to men of science. With *tendinæ* tense to his old faith and the *pia mater* aching with the promptings of the new faith

of science he selected from all time a few definite tenets of which he could say,—“these have I proven, to these shall I cling come what may, for the rest I cannot be held responsible.” That was his *via media*,—at least more comforting than no way at all, he believed. It was another Oxonian of similar refined sensibilities, frail of body, tortured in soul, drifting from the faith of his childhood he knew not whither, who, of a dark night from the prow of his ship in the sea of Lepanto uttered with anguish of soul that piercing, plaintive prayer:

Lead kindly light, lead Thou me on,
The night is dark and I am far from home.

Osler too had known dark nights of the soul and he too longed for home,—for some home. And, when in his library at Oxford, I saw above his desk the portrait of that other Oxonian Newman, I felt they were kindred souls chastened and sweetened because of their travail “o’er crag and moor” that gave them each new spiritual birth, new spiritual anchorage. Newman wished to be firmly anchored; Osler was quite content with not being adrift, one a churchman the other a man of science, both serious men.

For his “Way of Life” Osler went to the dialogues of Plato, the teachings of Marcus Aurelius, to Montaigne, Shakespeare, Epicurus and the Bible. He was always a part of what he read. He knew his Bible better than most preachers. He is constantly quoting from it—his *vade mecum*. For many profane writers Paul’s epistles are the storehouse, for Osler, Paul was too belligerent. Francis, the Assisian, he of the winesome soul, was more to his liking.

To the Greeks he went for inspiration; Plato was his counsellor and guide. In his last illness the “Dialogues of Plato” were at his bedside. From Socrates, Plato, and Aristotle he derived much of his equanimity. Those three were not idle dreamers, theirs was applied philosophy in their day. Osler

took them up, for he said the only knowledge worth while was knowledge that could be applied in this work-a-day world.

Plato was a disciple of Socrates with a passion for human improvement and a love of truth. The germs of all ideas, even of most christian ones, are found in Plato. In an analysis of him it is said that all philosophic truth is Plato rightly read; philosophic error is Plato misunderstood; and again, that conscious of his own infirmities he felt a profound sympathy with erring humanity. Osler imbibed much of that sympathy. Plato overstepped the limits of Hellenic borders to become a citizen of the world; Osler said that nationalism, in its chauvinism, was a curse and he too walked from it to become a citizen of the world. Intellectually the acutest, morally the purest citizen of his day Plato held a steadfast belief in a Supreme Being, the intelligent and beneficent Creator of the universe. He knew no luxury, he loved no wealth, he was just. It is therefore not strange that Osler's kindred soul chose him for a model,—for in addition he was a progressive man of good sense.

Of the Greeks, Sir Henry Maine says: "To one small people it was given to create the principle of progress. That people was the Greek. Except the blind forces of nature nothing moves in this world which is not Greek in its origin." One does not learn that simply by wrestling with his "Xenophon" or "Demosthenes de Corona" or his ponderous Greek grammar in his college days; the history of Grecian art, science, philosophy, letters must be re-read in the leisure of maturer years. Of that learning and wise philosophy Osler partook to a greater degree than most students and it was reflected in his writings and in his life.

Osler was the special friend of the old time general practitioner. He was ever ready to defend him from the derision of more learned brethren. To a graduating

class he endorsed him as quite worthy of the emulation of his hearers. A finished schoolman himself he made generous allowance for the deficient training of the general practitioner's early days; for in him he often saw the shrewd sane judgment and rugged virtues for which the finer embellishments of erudition alone are not a substitute. That tolerant attitude and that kindly sympathy ought to enshrine him in the reciprocal good will of this Society, composed largely of general practitioners! Let others pay homage to the more subtle things of the intellect, we of humbler ambition, though not necessarily of lesser discernment, love less Osler the scholar, because we love more Osler the man.

An obituary of him in the *Journal of the American Medical Association* epitomized his life-work in a tribute it was ever his ambition to justly merit, namely, that of "The Ideal Physician." That was the alpha and the omega of his life. And what is his message to this society? If I have culled anything of permanency from a study of his life it is the repeated counsel contained in the second admonition given on the Mount. And you, as well as I, know that, in smaller medical centers, especially, that counsel of tolerance one to another is too often observed more in the breach than in the performance. The older members are the worst sinners in that they keep alive old grievances born of early days of competitive professional life. Let the younger men improve on their elders: in them lies the promise of a wider charity. His second message would, of course, be about the things of the mind. He would boost our library. "Books have been my delight these thirty years and from them I have received incalculable benefits." "To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all." "For the general practitioner a well-used library in the society rooms is one of the few correctives of premature

senility which is so apt to overtake him." "It is astonishing with how little reading a doctor can practice medicine but it is not astonishing how badly he may do it."

Again he says: "The very marrow and fitness of books may not suffice to save a man from becoming a poor mean-spirited devil, without a spark of fine professional feeling and without a thought above sordid issues of the day." "Professional character is helped," he says, "by contemplation of the lives of the great and good of the past, and in no way more than in the touch divine of noble natures gone."

Some of that divine touch I have brought

here to-night in a gift to the Society of a portrait of Sir William Osler, Bart., as also of two volumes of the *ANNALS OF MEDICAL HISTORY*. These books will be a start along the road he pointed out to culture, to those finer and better things in our daily contact one with another and with the world. That is the society to aspire to, the society of books, where in quiet solitude we too will learn to commune with the great physicians of the past. In the lives of Osler and of the medical ancients we will realize and see, as perhaps in no other way, that the dignity of our work must ever make it a profession, never a trade.



Coat of arms appearing in Porta's "*Della Fisonomia dell' huomo, libri sei*". Gio. Giac. Carlino & Const. Vitale for Salvatore Scarano, Naples, 1610.

SHAKSPERE AND THE PRACTICE OF MEDICINE

By LEMUEL MATTHEWS GRIFFITHS, M.D., M.R.C.S.†

BRISTOL, ENGLAND

IT has been claimed for Shakspeare that in some branches of medical science he showed a knowledge far in advance of members of the profession. On the other hand, it has been asserted that he knew no more than any old woman of the period could have told him. It was my purpose to collect the passages referring, directly or indirectly, to medical science or practice, and thus try to find where the truth lies between these conflicting statements; for a third hypothesis—that he may, for the medical allusions, have consulted some practitioner of the healing art—can be dismissed at once, as the references are too numerous and too incidental for such a theory to be taken into consideration.¹

But when I had partly put this intention into practice, I found that I had marked² so many passages for comment, that, if I had carried out my original plan this article would have been far too long. It seemed undesirable to make selections, and so I determined to limit my subject to Shakspeare's references to the practitioner.

Shakspeare brings before us six classes of persons engaged in what we now recognize as branches of medical practice. These are—the physician, the surgeon, the apothecary, the tooth-drawer, the midwife, the nurse. In addition to these, and closely

connected with them in Shakspeare's day, there is the gatherer of simples.

Dr. Bucknill, a learned medical Shaksperian scholar "arrived at the fullest conviction that the great dramatist had, at least, been a diligent student of all medical knowledge existing in his time."³ And referring to "Much Ado about Nothing" (iv, i, 254),⁴ he says concerning the Friar's observation to Leonato about the appropriateness of using extreme methods for extreme diseases, "the passage is evidently copied from the Sixth Aphorism of Hippocrates," and he thinks Shakspeare "derived it from some work on the original."⁵

It is of interest therefore to see how Shakspeare refers to the names of those connected by fame with the healing art. Taking them in chronological order, we first find two of the most commonplace allusions to that very mythical personage, the God of Medicine. Cerimon, the physician in "Pericles," when he hopes by his skill to prevent Thaisa having a relapse, says, as in duty bound—

And Æsculapius guide us; iii, ii, 111.

And the doctor in "The Merry Wives of Windsor" is saluted by the host in mock heroics—

What says My Æsculapius? ii, iii, 29.

To Hippocrates, Shakspeare has only one allusion by name, and that in a perverted form, by Sir Hugh Evans, who

³ The Medical Knowledge of Shakespeare, London, 1860, 290. This is a book which every doctor, and every Shakspeare student ought to have. I have been greatly indebted to it. With the exception of Paré's book, it has been my only source for allusions in Shakspeare's medical contemporaries.

⁴ All the line references are to "Globe" edition.

⁵ *Op. cit.*, 116.

†President of Bristol Medico-Chirurgical Society 1887-8.

¹ I believe that such a practice was adopted by the late Hugh Conway in his widely-read "Called Back," and that he obtained the information required from a member of our Society.

² It is almost needless to say that I could not have done this without the help of Mrs. Cowden-Clarke's "Concordance" and Schmidt's "Lexicon," two indispensable works.

depreciates the worth of the "renowned French physician," whom he describes as ill-read in the works of the Father of Medicine. All laymen have a desire to know something of medical matters; and it is more than likely that in Shakspeare this desire was so intensified that he would avail himself of all opportunities of looking into medical writings for a wider range of view, with the inevitable result of making a jumble in his own mind. How far his medical and surgical allusions are imbued with the spirit of Hippocrates, I must leave to the opinion of my readers; but it may be not too much to say, that if Hippocrates had been an Elizabethan dramatist, the style of his writing would have been Shaksperian; and had Shakspeare been a Greek physician, his characteristics would have been those of Hippocrates, as a close observer and recorder of signs and a frugal prescriber of drugs.

From him Shakspeare might have learned much, for medical art in the sixteenth century had deteriorated sadly from its high position as expounded by Hippocrates.

Nearly six hundred years after Hippocrates came Galenus, whose influence was strong in Shakspeare's day. In 1559—five years before Shakspeare was born—Dr. John Geynes, the year before his admission as a Fellow of the Royal College of Physicians of London, "was cited before the College for impugning the infallibility of Galen." On his acknowledgment of error, and humble recantation signed with his own hand he was received into the College.⁶ So of course Shakspeare has something to say about Galen. He is mentioned twice in "The Merry Wives of Windsor" (II, iii, 29 and III, i, 67); once as a companion to Æsculapius in the host's appeal to the doctor already mentioned, and the other time associated with Hippocrates as an author in whom, according to Evans,

⁶ The Roll of the Royal College of Physicians of London, 1878. Ed. 2, i, 62.

Master Doctor Caius showed such lamentable ignorance. In "All's Well that Ends Well" (II, iii, 12), there is an allusion to his leadership of a school of medicine, where the wonder is expressed that the King could have been cured after being "relinquished by the artists" who practised after the manner of Galen. He was also the authority whence Sir John Falstaff had derived his muddled knowledge of apoplexy (2, "Henry IV," I, ii, 133). In "Coriolanus," Shakspeare uses the name of Galen as an opportunity for a scoff at medical practice, in which he was fond of indulging, as the opinion that he always paid respect to the profession is not borne out by his references. Menenius, whose spirits are raised by the news that Coriolanus is coming home after his victory at Corioli, drags in, without the least appropriateness, this sneer at the profession:

A letter for me! it gives me an estate of seven years' health; in which time I will make a lip at the physician: the most sovereign prescription in Galen is but empiricute, and, to this preservative, of no better report than a horse-drench. II, i, 127—130.

Dr. Bucknill's comment on this passage is typical of the mode of thought which sees an appreciative testimony in every allusion that Shakspeare makes to doctors. He says: "Menenius describes the health preserving effect of the pleasure it affords him, in terms which convey the poet's high appreciation of Galen, the great medical authority of his own day."⁷ The fact that Coriolanus, if he ever lived at all, had been dead nearly six hundred years when Galen was born did not trouble Shakspeare. Galen with no more than the knowledge of his own time would at the present day have made an excellent family doctor, a capacity in which his shyness of surgical interference would have been little drawback. He had a high opinion of Hippocrates,

⁷ *Op. cit.*, 207.

whose surgical prowess he does not emulate, although he was much given to surgery which did not involve operations.

Paracelsus, who is coupled with Galen as one whose followers were not equal to curing the fistula of the king in "All's Well that Ends Well," must be looked upon as a bit of a quack, although by his knowledge of chemistry he added considerably to the resources of pharmacy. It was through him that calomel and opium were generally used internally; but although he had a nostrum which would secure him from the fate of death, it did not keep him alive more than eight-and-forty years. Shakspeare most appropriately names Paracelsus as the representative of a school opposed to that of Galen, whose works Paracelsus had publicly burned. But it was not only those specifically named as of the schools of Galen and Paracelsus who had given up the king's case, but he had also been "relinquished of all the learned and authentic fellows that gave him out incurable." (ii, iii, 14, 16.) These, who would be disciples of Galen, had been previously referred to by the king himself as "our most learned doctors," and he goes on to say:

The congregated college have concluded
That labouring art can never ransom nature
From her inaidable estate. ii, i, 120-2.

When Shakspeare wrote the words "congregated college," no recent institution was in his mind. The College of Physicians had been established in 1518, and the nearest act of incorporation of a medical body had been that in 1540, which united the Barbers' Company and the Guild of Surgeons as the Company of Barbers and Surgeons.

The king in "All's Well that Ends Well" is a French king, but that would not have prevented Shakspeare from putting in English touches. But the congregated college to which he alludes probably has no definite meaning, although in 1603 "the College

of Physicians in the University of Paris, being lawfully congregated," not only judged Turquet de Mayern unworthy to practise because he had publicly identified himself with the tenets of the chemical school of Paracelsus, but forbade all who were of their "Society" to hold consultation with him.

The mention of this Frenchman brings one conveniently to Dr. Caius of "The Merry Wives of Windsor," because it has been sought to show that this "renowned French physician," as Master Page in the play calls him, was intended by Shakspeare to represent Turquet de Mayern, who was known to English people as Sir Theodore de Mayerne. But Mayerne did not settle in England till 1610, although he was there in 1606. He was appointed first physician to James I, and took a high place in professional life. He was a man of moderate views, and was able to see good both in the views of the old-fashioned practitioners and the chemical reformers. He was about the last man in the world that Shakspeare would have burlesqued as the doctor of "The Merry Wives;" and as the first sketch of the play (in which Caius appears) was printed in 1602, it may be concluded that there is no connection between the two personages.

An attempt has been made to show that Shakspeare meant to portray the well-known Dr. Caius whose name is connected with a "munificent foundation at Cambridge." But Dr. Caius was a man held in high honour, whom there was no occasion or need to satirize. He was an Englishman born, and when the play was written he had been dead thirty years.

This fancy therefore may be completely dismissed. The truth probably is, that Shakspeare wanted to poke fun once again at a Frenchman, and took this name as that of a doctor well remembered, but about the details of whose history he knew little and cared less.

There is one point which seems to connect the doctor in "The Merry Wives" with Caius of Cambridge. The doctor and the Welsh parson are by no means friendly in their intercommunications. "Dr. Caius in the statutes of the college founded by him specially excludes persons who are Welshmen from holding any of his fellowships." But this is probably a mere coincidence.

The only actual living doctor that Shakspeare introduces among his dramatis personæ is Dr. Butts, physician to Henry VIII. He appears, not in his medical capacity, but as a sympathizer with Cranmer disrespectfully treated by his judges. The king, when he hears from Butts the details of this treatment, becomes more strongly than before the friend and advocate of Cranmer. The portrait of Dr. Butts, whom Henry VIII knighted, is preserved in a well known picture attributed to Holbein, which is now in the Hall of the Barbers' Company. Butts is the foremost figure on the right of the king. Henry VIII was generous with other people's property to an extent perhaps unequalled by any other sovereign, and on Butts he bestowed rich gifts of abbey-lands; medical knights of today have to be content with the bare honour.

In addition to these actual personages, Shakspeare has many creations of medical men; and in one of these instances he set an example that might at the present day be occasionally followed with much propriety. In "Pericles," he who tells us (ii, ii, 31-2) that, "I ever have studied physic" is a lord of Ephesus. Only once during our time has the wearer of a peer's coronet been a medical man. The combination was, however, not familiar to the men of Shakspeare's day. A noble contemporary of his, who outlived him many years, has the honour of having his name associated with medicine. Henry, Lord Marquis of Dorchester, Earl of Kingston-upon-Hull, and Viscount Newark, after a long illness which familiarized him with doctors and

physic, at the age of forty-three brought his great talents to bear upon the study of medicine, and he became a member, and then a fellow, of the Royal College of Physicians. He nearly met his death by inadvertence. Dr. Goodall, in a MS. which is in the College of Physicians' Library, says: "In the morning, as soon as he was out of bed, he did often use to take a cordial electuary of his own prescribing; and at this time calling hastily for it, his stomach not being very well, the woman that kept it, amongst many other things of this and the like kind, by her over-diligence and haste mistook the gallipot, and instead thereof brought a pot of the extractum cardiacum, an excellent medicine taken in a due proportion; but he took so large a dose of it that his physicians judged he had taken near 100 grains of opium, which is one ingredient that medicine is compounded of. Within less than a quarter of an hour he grew heavy and dozed, and so into a deep sleep. This mistake was not discovered for three hours; when presently his coach was sent from Highgate, where he was then at his house, for Sir John Micklethwaite and Dr. Browne, with an account of this accident, who presently repaired to him, and found him in all appearance never to be recovered; the medicine was dispersed into the habit of his body, and they thought he would depart in this sleep; but using their utmost endeavours by forcing down something to make him vomit, and a clyster into his body, he did evacuate plentifully downwards, and after twenty-four hours came somewhat to himself again and in three or four days' time to good understanding."⁸ The case is not recorded with Hippocratic exactness; but if it represents the facts, we have an instance of a medical peer showing a tolerance of a drug which certainly has never been shown by a doctor of less exalted rank. The day seems

⁸ The Roll of the Royal College of Physicians. 1878. Ed. 2, i, 289-90.

far distant when we may have the opportunity of trying such a dose on another medical member of the House of Lords, although our life-saving profession ought to have been one of the first from which additions should have been made to that august assembly.

The practitioners introduced by Shakspeare are physicians who, as a class, are still, in popular estimation, higher in repute than surgeons. The reason of this is not difficult to discover. The clergy in early days monopolized all professions, and were the depositaries of everything that was good, and, in later monastic times, of much that was bad. After practising surgery for a long period, the religious sentiment became offended by the shedding of blood and a papal edict⁹ went forth that no operations were to be performed which involved such a result. The medical ecclesiastics, whilst rendering obedience to their spiritual authority, were wise in their generation; no longer able to perform the surgical operations themselves, they determined to retain some hold over the procedure. Barbers, who were largely employed for tonsorial purposes, seemed to furnish a class intellectually enough lower than the clergy to be kept in submission, and yet possessing that steadiness of hand and familiarity with cutting instruments which would render them ready pupils in such operations as might be required. These operations were carried out in the presence of those who were restricted to the medical part of the profession, and so well was their relation maintained, that notwithstanding the aggressive efforts of the successors of the monastic barber, and the fore-fathers of the modern surgeon, the College of Physicians, as late as 1632, "procured an order of council with a clause to the effect that no chirurgeon 'doe either dis-member, Trephan the head, open the chest or Belly, cut for the stone, or doe any great operation with

his hand upon the body of any person to which they are usually tyed to call their Wardens or Assistants, but in the presence of a learned physitian one or more of the College or of his Maj^{ties} physitians;"¹⁰ and it was not till 1635 that this order was cancelled by Charles I. Such was the abject condition of the operating surgeon in Shakspeare's days, and therefore it is no wonder that all his medical personages are physicians. The steps by which the developed monastic shaver was able to attain a position by which he could throw off his yoke, I will touch upon when I come to Shakspeare's allusions to surgeons.

In the year 1607, when Shakspeare was forty-three years of age, his daughter Susanna married Dr. John Hall, who was in practice at Stratford. Collier thinks that when Shakspeare came back to Stratford and settled in 1608 in New Place—the house which he had bought in 1597, and in which he died in 1616—that Dr. Hall and his wife lived there with him. In his will Shakspeare left New Place to Mistress Hall, and there is positive evidence they were living there the year after Shakspeare died. Dr. Hall was in good and large practice, as we know from the names of those whom he attended, of whom he speaks in the book, "Select Observations on English Bodies or Cures Empirical and Historical Performed on very eminent Persons in Desperate Disorders. First written in Latine by Mr. John Hall, Physician, of Stratford, where he was very famous, as also in the counties adjacent. Now put into English for common benefit by James Cook, Practitioner in Physick and Chirurgery. 1657." This was twenty-two years after Dr. Hall's death. Confirmation of the belief that Dr. Hall took a high position is also found in the fact that his daughter—his only child—married, as her second husband, John Bernard, who was afterwards knighted

⁹ By Innocent III in 1215.

¹⁰ South, John Flint. *Memorials of the Craft of Surgery in England*. London, 1886, 215.

by Charles II in 1661; and in 1669, in the person of Lady Bernard, the lineal descendants of the poet came to an end.

No man is a hero to his own valet, and probably no doctor is a hero to his own father-in-law, especially if they live together. If this was true in reference to Shakspeare and Dr. Hall, it would go far to explain some of the slighting and needless allusions to medical practice that so frequently appear in the plays.

I will now run through the list of Shakspeare's physicians, taking the plays in their approximately chronological sequence, in order to see if, with the maturity of his powers, he saw any reason to regard them in varying lights.

In "The Comedy of Errors," Pinch, described as a schoolmaster, takes upon himself the functions of an alienist physician, and is appealed to by Adriana to restore her husband to the senses which she supposed he had lost, as by that time in the play (Act IV) he had become considerably mixed up with his twin brother, whom he accurately resembled. Pinch professes to diagnose the complaint by the state of the pulse and the pale and deadly look, and then, by means of his holy prayers, proceeds to remove the devil by whom he considers the man to be possessed. Finding this does not remove a non-existent disease, he orders restraint in a dark room—the routine treatment of lunacy—about which I shall have something more to say under the head of mental disease. Pinch is described as a schoolmaster,¹¹ one of a class who, being of superior education, were credited with the power of dealing with spirits. In "Hamlet," Marcellus requests Horatio to converse with the ghost of Hamlet's father saying, "Thou art a scholar; speak to it, Horatio." From these passages

¹¹ The offices of schoolmaster and exorciser of spirits were often combined in one person. See references in Ben Jonson's, "The Staple of News," I, ii, and III, ii.

it is seen that it was not the invariable rule to address spirits in Latin. Pinch is an unadulterated specimen of a humbug, who endeavoured to make capital by assuming powers which he did not possess. He is graphically described as

.... a hungry lean-faced villain,
A mere anatomy, a mountebank,
A threadbare juggler and a fortune-teller,
A needy, hollow-eyed, sharp-looking wretch,
A living-dead man. v, i, 237-41.

In him Shakspeare exposes the irregular practitioner rather than the true physician.

In "Romeo and Juliet," Friar Laurence does some impossible amateur doctoring in administering a drug to Juliet which, amongst other wonderful effects, can stop the pulse for two-and-forty hours. Shakspeare, no doubt, fully believed this, which he took from the poem of Romeus and Juliet, translated from the Italian of Bandello by Arthur Brooke.¹² Friar Laurence, who thus unites two professions, recalls the early monks, who were ecclesiastics and doctors. His observations on the plants and flowers he gathers will be more appropriately considered under the head of materia medica.

The "Merry Wives of Windsor" is the earliest play in which there is a doctor among the characters. Here is Dr. Caius, to whom I have already made some reference. Dismissing all fanciful allusions to actual individuals, I shall look upon him simply as a portraiture of a practitioner with whom Shakspeare came into contact, and in whom he caricatures the pretensions of the medical profession. It must be remembered that English practitioners were then very intolerant of foreigners who came here to practise their art, especially if they were bigger charlatans than themselves. In "The Return from Parnassus," a University play in which Shakspeare is mentioned by name, occurs the expression,

¹² No pulse shall goe, ne hart once beate within
thy hollow brest,

But thou shalt lye as she that dyeth in a trauce.

"We'll gull the world that hath in estimation forraine phisitions." Caius is introduced (i, iv, 45) sending for his "boitier vert" or his "green-a box." What this contained is doubtful. It may have had some instruments or appliances,¹³ but most probably contained drugs,¹⁴ which he could administer and charge for on the spot. He makes a brag of his surgical powers, and he threatens to remove the testicles of Sir Hugh Evans (i, iv, 118), whose interference in his love matters he strongly resents. This is a piece of surgical braggadocio. His line is more correctly described by the language of the host, who, when the thought came across him that his doctor may be killed in the duel, says, "Shall I lose my doctor? No; he gives me the potions, and my motions." (iii, i, 104-5.) Probably in his vocation as landlord of the Garter Inn, he found a free and frequent purgation exceedingly beneficial.

Viewed in the light of clinical investigations of to-day, there are one or two references to Caius and his practices—connected with allusions in other plays—that are of great interest. Caius is called "bully stale" (ii, iii, 30), "a Castalion-King-Urinal" (ii, iii, 34), "Mounseur Mock water" (ii, iii, 60); and about his head Evans twice (iii, i, 14, 91) threatens to knock his "urinals." In "The Two Gentlemen of Verona" (ii, i, 39-43), Speed, telling his master of the evident signs of love which he shows, says "these follies are within you and shine through you like the water in an urinal, that not an eye that sees you but is a physician to comment on your malady." Falstaff, anxious about himself, sends a specimen of his urine to the doctor, and the messenger comes back telling him that the doctor said "the water itself was a

good healthy water; but for party that owed it, he might have more diseases than he knew for." (2, "Henry iv," i, ii, 3-6.) In "Twelfth Night" (iii, iv, 114), Fabian and the others, desirous of knowing the condition of Malvolio and the prognosis, agree to "carry his water to the wise woman." Macbeth with a sense of his country's impending danger, metaphorically says to his wife's medical attendant:

If thou couldst, doctor, cast
The water of my land, find her disease,
And purge it to a sound and pristine health,
I would applaud thee to the very echo. v, iii, 50-3.,

The intention to present Malvolio's urine to the judgment of "the wise woman" shows that this branch of professional work was also carried on by women in Shakspeare's days, who, as a sex, had practiced medicine in earlier times. The modern return to this old custom, coming to us as a novelty, brought with it a shock from which we now seem to be recovering, and it was accompanied by a violence of language that was much to be deplored.

In "All's Well that Ends Well," the reputation of Gerard de Narbon, a man famous in his profession as doctor, is mentioned. His remedies were such that they did not require a skilled person to apply them, for they were successfully used by his daughter, who had inherited his prescriptions; and his armamentarium was probably labelled for particular diseases, resembling some hospital preparations which were formerly known as "Mistura Tussis," "Mistura Febrifuga," and the like, and which could be administered by anyone who could turn the tap of the jar containing them. The details of the king's malady, and the conduct of his successful medical attendant, I shall refer to on another occasion. Shakspeare took from Boccaccio the incident of the cure of the king by the daughter of a dead physician, when all the medical attendants

¹³ Cf. *Troilus and Cressida*, v, i, 22.

¹⁴ See i, 65. In the 1602 version of the play Caius sends for "de oyntment," and says:

"O I am almost forget
My simples in a boxe."

he could obtain had failed. But his endorsement of the story cannot be considered a compliment to the profession.

The doctor in "King Lear" is the first medical man in the plays for whom one does not entertain contempt. Lear must have been written about 1606; and as we have seen that Dr. Hall married Shakspeare's daughter in 1607, it would seem that when the poet and the physician were brought more together, Shakspeare put into a play, for the first time, a respectable practitioner, and not a burlesque representation of a doctor. This, of course, would not prevent him introducing some banter at doctors and their ways. Lear's medical attendant is only introduced to administer a sleeping-draught to the distraught patient. (iv, iv.) He has no marked individuality, and is peculiarly inoffensive; perhaps defers a little too much to his royal patient's daughter as to the time when he should awake the sick man; but Cordelia, as a sensible woman, gives him confidence by saying:

Be governed by your knowledge, and proceed
I' the sway of your own will. iv, vii, 19, 20.

In "Macbeth" there are two doctors—an English one and a Scotch one. The English doctor appears only to announce that his king is coming forth to cure by touch "a crew of wretched souls" suffering from the disease here called "the evil." (iv, iii, 140-6.) Dr. Bucknill says the physicians were "either sufficiently ignorant or sufficiently polite, not to doubt, or not to appear to doubt, the possession by our king of this miraculous therapeutic power." Shakspeare gives the incident as he found it in Holinshead, from whom the historical record was taken. The Scotch doctor, like his modern antitype, is a shrewd practitioner. Coming to observe for himself the condition of Lady Macbeth, he refuses to take anything upon hearsay. He endeavours for the benefit of his patient to get the gentlewoman to tell him all she knew about the

case, and then, when he is able to observe for himself, like a wise man, he makes a note at the time of what he hears. He is an honest man, and plainly says the case is not one for his treatment, as the symptoms all point to a distressed conscience; and this fact brings home to him his own shortcomings and sins, and pathetically he murmurs, "God, God, forgive us all." And then as a parting injunction he leaves an admirable piece of advice, that although the cause of the disease is beyond his reach, it may be aggravated by injudicious surroundings, and as long as her mind-torture leads her to walk in her sleep, she is exposed to physical dangers, and her attendants should "still keep eyes upon her." (v, i). To the husband he reports in concise form the result of his enquiry, and reiterates his inability to deal with the case. The last we hear of him is a somewhat timid fear, excusable perhaps, that some foul play may be practised upon him, which even a big fee would not tempt him to risk by returning. (v, iii, 37-62.) Most likely Macbeth had not paid him anything. Altogether there is in this Scotch doctor much to be admired. His acts and demeanour would make the subject of an excellent address for students.

I have mentioned Cerimon in "Pericles" as the only one of Shakspeare's doctors who can be classed among the nobility. His ways are, however, more amateurish than professional. His whole language is strained, and he is more a magician than a physician. He had

. . . heard of an Egyptian,
That had nine hours lien dead.
Who was by good appliance recovered

iii, ii, 84-6.

Dr. Bucknill gets over this difficulty by saying it is not to be taken literally, but that Shakspeare meant "that the man had lain nine hours as dead." But a writer who could believe that there existed a drug of such marvellous power as that given to

Juliet, could have no difficulty in bringing a man round who had been dead only nine hours. There is great doubt about the authorship of "Pericles." It was not included in Shakspeare's works till the third folio. I would fain believe that he had nothing to do with the creation of Cerimon.

Cornelius, described in "Cymbeline" as a physician, is upon his first appearance more of an apothecary. He is employed by the queen to bring poisons, with which she alleges she wishes to try experiments on the lower animals. He, good man, suspicious of her intent, gives her drugs which are only mild narcotics, and not what she imagines them to be. When he re-appears, at the end of the play, with the news of the queen's death, he seems to be more a friend of the family than a medical attendant.

While the commendable observation of the king in "All's Well that Ends Well"

I say we must not

So stain our judgment, or corrupt our hope,

To prostitute our past-cure malady

To empirics. II, i, 122-5

may lead one to suppose that Shakspeare had great respect for the authorised practitioner, it must be remembered that after all the king did that which he said he was not going to do, and that any way the importance of the passage is but comparative.

An examination of the following passages will show that Shakspeare did not hold regular physicians in very high repute:-

Mistress Quickly, in "The Merry Wives of Windsor," urging to Mistress Page the merits of Fenton as a suitor of her daughter Anne, said, referring to Caius:

Will you cast away your child on a fool, and a physician? III, iv, 100-1

Bertram gives expression to a similar statement:

A poor physician's daughter my wife!

"All's Well that Ends Well," II, iii, 122.

Lafeu, giving to the Countess of Rousillon a reply to her enquiry for the king's health, says:

He hath abandoned his physicians, madam; under whose practices he hath persecuted time with hope, and finds no other advantage in the process but only the losing of hope by time.

"All's Well that Ends Well,"

I, i, 15-18.

Either Shakspeare or Richard II must have thought better of the physician's powers than of his morals, when the king, referring to old John of Gaunt, says:

Now put it, God, in the physician's mind

To help him to his grave immediately.

"Richard II," I, iv, 59, 60.

Timon says to the banditti:

Trust not the physician;

His antidotes are poison, and he slays

More than you rob.

"Timon of Athens," IV, iii, 434-6.

Posthumus, in "Cymbeline," does not think much of medical efforts to cure the gout. Perhaps, if he were alive now, he would not find them much more successful. When in prison, he says:

Yet am I better

Than one that's sick o' the gout; since he had rather Groan so in perpetuity than be cured

By the sure physician, Death.

V, iv, 4-7.

"Death will seize the doctor too" is such an obvious truism, that Cymbeline would certainly not have told Cornelius so (V, V, 29), unless with the intention of lowering the physician's self-importance.

And for the surgeon, Shakspeare has the same uncomplimentary allusion. In "The Tempest," when the passengers escaped from shipwreck are reviewing their position, Gonzalo, commenting on the inopportune-ness of a remark of Sebastian's, says:

You rub the sore

When you should bring the plaster.

Upon which Antonio adds, as a biting sneer:

And most chirurgically. II, i, 138-40.

Shakspeare's references to surgeons are not to individual practitioners. One illustration is thereby afforded of the low estima-

tion in which they were held in his day. Those whose merits were supposed to consist, as their name implies, in mere manual dexterity, were of course thought less of than those who had to apply mental processes to the determination and cure of disease. There was in Shakspeare's time much need for the advocacy of Paré¹⁵ who in his "Works" eloquently, and with much acuteness, says:

Seeing there be three parts of Physick which at this time we profess; Chirurgery which by the use of the hand, Diet which the convenient manner of feeding and ordering the body, and Pharmacy that by Medicins attempt to expel Diseases, and preserve Health; The prime Physicians do not without reason contend which of these may be accounted the chief. Certainly Herophilus had Pharmacy in such esteem, that he thought Medicins were first mixed and administered to the Sick by Apollo (whom Antiquity thought a great Deity). And Pliny had so great an opinion of Diet, that he exclaims, The true Remedies and Antidotes against Diseases, are put into the Pot and eaten every day by the poor People. Verily all learned men confess, that the manner of curing which is performed by Diet, is much more facil and prosperous than that which is done by Medicins; as those things which sought with much labour and cost are taken with much loathing, and taken are scarce retained, but retained they oft work with much labour and pain: Which things long ago moved Asclepiades to exclude the use of Medicins as hurtful to the stomach. Yet if we will believe Celsus, neither of these parts merit the preeminence, but both of them give place to Chirurgery. For seeing that Fortune is very powerful in Diseases, and the same Meats and Medicins are often good and often vain, truly it is hard to say, whether the health is recovered by the benefit of Diet and Pharmacy, or by the strength of the body. Moreover in those cases in which we most prevail with Medicins, although the profit be most manifest, yet it is evident that health is often sought in vain even by these things, and

often recovered without them. As it may be perceived by some troubled with sore Eyes, and others with Quartan Fevers, who having been long troubled by Physicians, are healed without them. But the effect of Chirurgery as it is very necessary, so it is the most evident amongst all the parts of Physick. For who without Chirurgery can hope to cure Broken or Luxated parts, who Wounds and Ulcers, who the Falling of the Matrix, the Stone in the Bladder, a Member infested with a Gangrene or Sphacele? Besides, this part also is the most antient; for Podalirius and Machaon following their General Agamemnon to the Trojan Wars, yielded no small comfort to their Fellow-Souldiers. Whom notwithstanding Homer affirms not to have given any help in the Pestilence, nor in divers other Diseases, but only were accustomed to heal Wounds by Instruments and Medicins. And if the difficulty of learning it argue the excellency of the Art, who can doubt but Chirurgery must be the most excellent, seeing that none ought to be accounted a Chirurgeon, or which can perform his duty without the knowledge of Diet and Pharmacy? But both the other can perform their parts without Chirurgery, if we may believe Galen. But if we consider the matter more nearly according to truth, we shall understand those three parts have a certain common band, and are very near of kindred, so that the one implores the aid of the other; neither can the Physician do anything praiseworthy without the conspiracy and joint consent of these three; therefore in ancient times there was but one Performer and User of all the three Parts. But the multitude of men daily increasing, and on the contrary, Mans life decreasing, so that it did not seem able to suffice for to learn and exercise all the three, the Workmen divided themselves. Wherefore that which happens to any man either by lot, or counsel, that let him follow, maintain and onely use as mindful how short his life is, and how long the Art.¹⁶

The barbers, whom the clergy had employed to perform operations, naturally, as time went on, were unwilling to continue

¹⁵ Paré died in 1590, just as Shakspeare was beginning his literary life.

¹⁶ This extract is taken from the preface to the English edition of 1634.

their position as mere handicraftsmen, and were jealous of the success of those "surgeons who were not shavers." They succeeded, upon petition to the court of Aldermen of the City of London, in getting their rights recognised by authority. Thus there were two authorized sets practising surgery—those licensed by the Guild of Surgeons, and those belonging to the Guild of Barbers. The Barber-surgeons went on improving their position, till, in 1540, in the reign of Henry VIII, an act of Parliament was passed forming the Barbers' Company and the Guild of Surgeons into the Company of Barbers and Surgeons. The union continued till 1745, more than two centuries. The difficulties of the incongruous alliance are well chronicled by South.¹⁷

In 1745 the separate Surgeons' Company was formed and this lasted till 1796. In 1800 the Royal College of Surgeons of England was established by Royal Charter. Surgeons have not yet, in lay opinion, quite recovered from the relative inferiority engendered by attention being too greatly directed to their manipulative dexterity, and their long association with the barber. I have heard of a Boston man, who had evidently suffered much at the hands of his hairdresser, and who says that if surgeons are no longer barbers, many barbers are still surgeons.

But the salvation of the surgeons, if we are to believe one authority, is to come from this unexpected quarter, and, as in the case of the re-uniting of the Colleges of Physicians and Surgeons, history is to repeat itself. At a meeting of the Hairdressers' Guild, held at St. James's Hall, London, the lecturer said:

Our services are indispensable, and the world cannot do without us. It is now more than 140 years since we separated ourselves from the surgeons, but there may come an age in which we shall be re-united.¹⁸

¹⁷ Memorials of the Craft of Surgery in England. See footnote 10.

¹⁸ *Western Daily Press*, Oct. 2, 1886.

Irrespective of the definite acts which the surgeon has done, or is to do, there are some general references to surgeons, but these are mostly of a commonplace or metaphorical character.

Duncan's injunction to get "surgeons" for the bleeding sergeant in "Macbeth" does not imply that there was need of assistance or consultation, but was probably only a part of that regal and noble magnificence which gives orders on a large scale, and which led Capulet to issue an order for twenty cunning cooks. In Lear's case, the desire to have "surgeons" was probably more real. Perhaps the most natural of all these indefinite allusions is where Mercutio, fatally stabbed by Tybalt, having called for a surgeon, goes on to say, in answer to Romeo's wish that the hurt cannot be much:

No, 'tis not so deep as a well, nor so wide as a church-door; but 'tis enough, 'twill serve: ask for me to-morrow, and you shall find me a grave man. I am peppered, I warrant, for this world. A plague o' both your houses! Zounds, a dog, a rat, a mouse, a cat, to scratch a man to death! a braggart, a rogue, a villain, that fights by the book of arithmetic! Why the devil came you between us? I was hurt under your arm.

Help me into some house, Benvolio,
Or I shall faint. A plague o' both your houses!
They have made worms' meat of me: I have it,
And soundly too: your houses!

"Romeo and Juliet," III, i, 99-113.

Although it will have been gathered from what I have said that the extravagant claims put forward for Shakspeare's insight into medical matters cannot be allowed, yet, as medical men, we should learn this much from him: that we shall be helping forward our art if we copy his faithfulness in noting the facts that come under observation; endeavouring, even if we can only do so in a lamentably imperfect way, to imitate his conciseness of language, and, by a careful study of his works, to breathe in

something of the spirit of that mode of expression which his incomparable language has marked as the standard by which we should judge our own puny efforts, and to the height of which we should be always endeavouring to raise ourselves. Medicine of Shakspeare's period must not be judged by the knowledge of to-day. If our art has not advanced since then, both in theory and practice, the sooner we leave our patients to the unalloyed benefits of the *vis medicatrix naturæ* the better for them. But those who seek to credit Shakspeare with any special medical knowledge seem to me to do so to the disparagement of our

profession, which is not so poor a one that it can be expounded by him who has merely powers of observation and felicity of expression. There are fundamental principles (for instance, of anatomy and physiology) without which the practitioner walks a path beset with pitfalls, into which he is in constant danger of being entrapped. A knowledge of our profession cannot be obtained from books only: there must be clinical experience, with the voice of the living teacher to guide the learner through the intricacies of the elemental training. And of these necessities we know that Shakspeare has none.



AN ASSYRO-BABYLONIAN TREATISE ON DISEASES OF THE MALE URINARY AND GENITAL ORGANS

By EDWARD PODOLSKY

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THERE is in the Museum of the University of Pennsylvania a tablet which is of special interest to the medical profession because it reveals some curious medical ideas of the ancients hitherto unknown. It is but recently that the text of this curious tablet has been translated. The reason accounting for this is the exceedingly small script which could not be read without very great difficulty. It is only recently through the great scholarship of Dr. H. F. Lutz of the University of Pennsylvania that the cuniforms have been deciphered.

The tablet is of neo-Babylonian origin and probably belongs to the time of 650-600 B. C. The text so far as it has resisted the ravages of time enumerates eight different cases of urinary and genital disorders for which there are sometimes described twenty-one treatments for a single disease. There is first stated briefly the symptoms of the disease from which follows a description of the cure. Here, however, will be considered only one prescription for each disease, for they differ very slightly from each other, except, perhaps, for several unessential details.

STATEMENT OF THE SYMPTOM NO. I

If a man is sick of incontinence of urine,

PRESCRIPTION NO. I

He shall drink each day for five days one *qa* of roasted refined scap of the male sheep and one *qa* of roasted male thorny root without food in two potions. He shall drink the beverage and he will recover.

The symptom is very obviously that of a case of enuresis.

STATEMENT OF SYMPTOM NO. II

If that a man's *tunu*¹ bleeds without cessation and it protrudes considerably,

PRESCRIPTION NO. II

Thou shalt grind the seed of the tamarisk, the seed of the cynoglosson and bitter plant; thou shalt throw it (the ground product) into wine. At the approach of the star, in the morning, he shall drink it without food and he will recover.

This symptom is not so clearly stated as the preceding one, but it is either a case of vesical hemorrhage (bladder) or more probably either acute cystitis or traumatism of the bladder—parasites—schistosoma hematobium.

STATEMENT OF SYMPTOM NO. III

If a man's flesh of the interior of his scrotum (or bladder) turns upside down and his urine is stopped, the "foundation" of his "dead" penis is closed up, that man is sick of the "flow of the seed."

PRESCRIPTION NO. III

Thou shalt mix in equal portions two *sbeqels* of bitter plant, two *sbeqels* of *H I L* without taste, two *qa* of wine water, aromatic oil and milk. One half thou shalt smear on a cloth. Thou shall pour it on the man's sore. Thou shalt mix *X* in wine. At the approach of the star he shall drink it without food and he will recover.

This is probably a case of cystocele or hernia, or it may perhaps be spermatorrhea.

STATEMENT OF SYMPTOM NO. IV

If a man is sick of stone,

¹ *Tunu* is a new word to Assyriologists, having appeared probably for the first time in this tablet. It is obviously the name of an internal part of the penis or bladder.

PRESCRIPTION NO. IV

Thou shalt mix cedar-water, cypress, bitter plant, passucane, All these herbs.....
 "the tear of the eye" thou shalt smear. Thou shalt pour it on the man's sore.....
 during.....pain he will not know. It will restore him. The root of the cynoglosson he shall eat and he will recover.

This clearly points to a case of vesical calculi.

STATEMENT OF SYMPTOM NO. V

If a man discharges blood from his penis like a woman,

PRESCRIPTION NO. V

Thou shalt pour kukuhan (?) plant, ripsu-(?) grain,³ nuhurtu and horned alkali in wine. The man shall drink the potion and he will recover.

This symptom suggests a case of periodical hematuria.

STATEMENT OF SYMPTOM NO. VI

If a man in his sleep (?) (or) walking has seminal discharges, and he does not know that he went to his wife and his penis and "cloth" are full of seminal fluid,

³ The several drugs mentioned in the prescription are very vague, and it is only with great hazard and uncertainty that we may venture to suggest modern names for them.

PRESCRIPTION NO. VI

Thou shalt mix in oil "clay of the dust of the mountain stone" and horned alkali. Thou shalt smear a plaster on the point of the man's tongue.³ Thou shalt pour it on the man's sore. And in oil and wine thou shalt mix it. He shall drink it and he will recover.

This is very clearly a case of spermatorrhea.

STATEMENT OF SYMPTOM NO. VII

If a man's foot⁴ is sick,

PRESCRIPTION NO. VII

Thou shalt grind latu-thorn. In wine he shall drink it and he will recover.

This is a case of prostatitis.

STATEMENT OF SYMPTOM NO. VIII AND PRESCRIPTION NO. VIII

If in a man's "foot" lives a scorpion, thou shalt pour oil in wine in a strong vessel. For fourteen days thou shalt not expose him to the brightness of the heat.....

The text here is but partly preserved, and the many missing cuniforms make it impossible to infer the character of the ailment.

³ The word "tongue" in the prescription is simply a fanciful reference to the penis. These colourful allusions are common also in Biblical literature.

⁴ Again the word 'foot' is simply a reference. In this case it is the bladder.

ON THE GIVING OF MEDICAL DEGREES DURING THE MIDDLE AGES BY OTHER THAN ACADEMIC AUTHORITY

By HARRY FRIEDENWALD, M.D.

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IN 1140 Roger II, King of the two Sicilies, issued the first known legal enactment for the regulation of medical practice in Europe:

Whosoever will henceforth practise medicine, let him present himself to our officials and judges to be examined by them; but if he presume of his own temerity, let him be imprisoned and all his goods be sold by auction. The object of this is to prevent the subjects of our kingdom incurring peril through the ignorance of physicians.

One hundred years later Emperor Frederick II in his "Statutes for the University of Salerno" reaffirmed the regulations of his grandfather and added:

Considering the harm which may arise from the ignorance of physicians, we ordain that no one shall henceforth practise physic unless he be first publicly examined by the masters of Salerno, and present testimonials, both from them and from those appointed by us, to ourselves or our representative, and receive from us or him license to practise.¹

It is generally assumed that from this time onward the examinations for the

¹ Withington: Medical History, London, 1894, 233. Puschmann: Geschichte des Med. Unterrichts, Leipzig, 1889, 174.

² Since this paper went to press I have found the following interesting note in Rashdall's "Mediaeval Universities," ii, 750: "From a very early period we find the Pope interfering with the ordinary working of the academical system, in order to confer degrees upon favorite individuals . . . At other times the Papal Bull authorized certain ecclesiastics not only to examine but to actually confer the Mastership upon the candidate. By the fifteenth century such commissions to confer degrees, whether permanent and general or simply *ad hoc*, had been largely multiplied. Thus the "Statuta Aristarum" of Padua, Venice, 1596, recite that, *Plerique vel paupertate—coacti uel alia causa inducti quum non possim uel*

Licentiate, the Baccalaureate, the Master's, the Doctor's degrees were given solely by the faculties of the universities. That degrees were granted in other than academic ways is not indicated in the histories of medicine or even in so exhaustive a work as that of Puschmann on the history of medical education.²

The following references show that medical degrees were also given after examinations, by royal or by papal authority.

In May, 1402 the "licentia practicandi" was obtained by Solomon Aviczor (Abigdor?) a Jewish student in Arles.³ It was granted by a representative of the "royal magistrate" after public submission of a thesis in the presence of four physicians, of whom one only, the preceptor of the student, was a Christian; the other three were Jewish physicians. Aviczor presented his thesis *palam et alta et intelligibili voce . . . existens pedes cum omni reverentia . . . proposito suo exordio sive præmio et ornate, unicam posuit questionem ad modum dispute, proponens titule sub forma in simili usitata, paratus illam sustinere et deffendere*

nolint ex aliqua causa se subiicere examini clarissimi collegii in artibus medicinæ baccalariatus uel doctoratus gradum sumunt ab aliquibus qui ex apostolica uel imperatoria auctoritate facultatem et privilegium habent huiusmodi baccalarios vel doctores creandi (Many who are unable because of poverty or some other reason or are unwilling for some cause to undergo the examination in medicine before this famous faculty receive the degree of bachelor doctor from certain persons who by the authority of the Pope or the Emperor have the right and privilege of conferring such titles of bachelor and doctor). It appears that the Emperor likewise (but more rarely) exercised the right of making *Doctores bullati*, and even delegated it to others."

³ There was no University in Arles.

cuicumque arguenti quantam ejus sensus, scientia et discretio poterit sub venire, dicens rationes quam plures et allegans textus et glossas . . . librorum, institutionum, canonum peritissimorum doctorum.

The physicians took the oath, the one *ad sancta dei evangelia* the others *ad legem Moysi, scripturis bebraycis manibus suis tactis* and declared the candidate worthy of being received. The latter then took the oath *de practico et exercendo dictam artem medicine bene et legaliter sine exceptione sive differentia personnarum . . .* and he was then received.⁴

It is very evident that the four physicians commissioned to conduct the examination were not an academic body, or acting under the authority of a university, although the form was identical with that followed in the universities.

There are a number of references to papal grants of license to practise medicine and orders to examine applicants for medical degrees.⁵ All of these references, however, concern Jews and may be explained as special ecclesiastical dispensation in view of prohibitive decrees of the Church.

Quite different conditions obtained in the following letter patent to Rabbi Samuel Zarfiat by Pope Julius 1502.⁶

We have heard that because you are unusually skilled through long experience and practise in the art of medicine, our predecessor, Pope Alexander VI of blessed memory granted you full and free license and opportunity to practise

this art in accordance with its traditions even on the persons of Christians and the privilege of prescribing medicines in accordance with the nature of various diseases and permitted the said Christians of whatever rank, position, order or condition they may have been, to take medicine from you and by your prescriptions.

(And having heard) later on that our most beloved son in Christ, Louis the Most Christian King of France, granted to you, Rabbi, to your wife and to your children of both sexes as well as to your servants and attendants, with all and sundry of your possessions and goods in any dominions, lands, villages and places on this side of the Alps which are subject to said King, the right of safely, securely and freely remaining, dwelling, residing, and practising, and going thence and returning and travelling about, because you were a doctor of arts and medicine, as it is said to be fully contained in the letters patent of our aforesaid predecessor in the form of a brief and of the aforesaid King.

Since, however, as we have furthermore learned, you were not a doctor of arts and of medicine at the time of the dates of said letters nor are you such at present, we desiring that the letters of our predecessor should not therefore be vitiated on the ground of fraud, and desiring to provide that both you who are still in constant attendance upon us and Rabbi Joseph your son and your family, on account of your ability as a physician, should be the object of our gracious favor—of our own accord and not at your instance nor at that of a petition of your children or of some other for you, but out of our pure generosity and of certain knowledge, we have decreed and declare by apostolic authority according to the tenor of these presents that

pass upon him the degree of medicine." (Marini: *Archiatři Pontifici*. Rome, 1784, i, 296, note.)

Innocent VIII granted permission in 1492 to the Faculty in Naples to graduate Abram de Balmes, and allowed him to practice in that city. (Stern, i, 67.)

As late as 1716 such permission had to be secured before the Jewish student could present himself before the faculty of the University in Rome for a medical degree,—as seen in the interesting memoirs of a Jewish medical student of that day. (Berliner, *Jahrbuch f. jud. Geschichte und Literatur*, 1904 110.)

⁶ The letter in Latin is published in Marini's "*Archiatři Pontifici*" ii, 249.

⁴ *Rev. etud. juiv.* Article on the Jews of Arles, xli, 67.

⁵ Thus during the pontificate of Nicholas V, Manuel Ben Solomon of Cesena was granted license to practise (1447), (Stern, *Urkundliche Beiträge ueber die Stellung der Päpste zu den Juden*, Kiel, 1893 and 1895, i, 65) as were likewise Dactilus and his son Guilielmus, in Corneto, Montalto and Civita Vecchio. (Stern, i, 57.) Pope Sixtus IV in 1473 and 1474 gave similar licenses to Astruc de Balmes in Naples and to Leo, (Stern, i, 65) and Clement in 1530 did the same for Joseph of Nola, Isaac of Jana, and Solomon of Rimini. (Stern, i, 75, 76.)

Julius 111 (1550–1555) "called together the medical faculty of Padua to examine Leone Benaja and

the letters of our predecessor in this regard from the date of the present letter shall be valid in everything and for everything, just as if it were not stated in them that you were a doctor of arts and of medicine, and we have confirmed the said letters as also those of the aforesaid King by similar inclination, knowledge and authority, and we likewise approve them supplying all and sundry defects both of law and of fact, if by chance there should be any in them, and nevertheless to you and to your said son Joseph, as long as you live and he lives, we grant the permission and the privilege of practicing the said art of medicine upon the persons of Christians, the form of the General Council being otherwise observed and in accordance with the canons of medicine—and the right of prescribing medicines:

And we grant the said Christians of whatever rank, position, order or condition, whether kingly or pontifical, the right of receiving medicines of this kind from you or from any of yours and by your prescription or that of any of yours; and furthermore⁷ we have enjoined and commanded by these letters patent to such masters of medicine, even Christians, to be chosen by you Rabbis Samuel and Joseph, and whomever you please of yours that provided they should find you Rabbis Samuel and Joseph fit to be admitted to the rank of master of arts and medicine that they may admit you and whomever you please of yours to the rank of master in the said arts and medicine in the same faculty and that they may grant to you and to whomever you please the insignia of master and they may grant and do any other things that may be necessary in the premises, etc.

The letter then grants the right of

⁷The text of this portion of the letter follows: "Et insuper tibi in Medicina (sic) Magistris, etiam Christianis, per vos Rabi Samuelem, & Joseph, & quolibet vestrum eligendis, per eandem patentes committimus, & mandamus, quatenus si vos Rabi Samuelem, & Joseph in Artibus & Medicina huiusmodi, ac Magisterii gradum idoneos sere reperiunt vos, & quolibet vestrum ad Magisterii gradum in eisdem Artibus, & Medicina in eadem facultate promoveant, vobisque, & cuilibet vestrum Magisterii insignia tradant, & concedant, & alia faciant, quae in praemissis, & circa ea necessaria fuerint, seu quomodolibet opportuna. Super quibus eis, ac etiam

receiving the insignia of the degree, as well as "all and sundry privileges, opportunities, prerogatives, favors, exemptions and immunities which other doctors of arts and medicine, graduates in whatever universities of general learning, use, profit by and enjoy." He was to be "in all respects as though promoted to the same degree in any university of general learning, in powers knowledge, authority." Finally the letter exempted him, his wife and entire family and household, from the jurisdiction of any power or court, temporal or ecclesiastic and placed him under the direct and sole jurisdiction and protection of the Holy See and relieved him from the necessity of wearing the Jewish badge, from paying taxes and tributes of all kinds, etc.

From this letter we see clearly that the medical degree was awarded without the authority of any university faculty and solely by papal authority. It is to be noted that it is specially ordered that the degree was to carry with it *all the rights, honours and privileges which went with the degree bestowed by the universities*. It is interesting to see that the examiners were to be chosen by Rabbi Samuel and his son, and more particularly "even Christians"—and further that such others as they should select were to be thus examined and admitted to the same medical degree.

It will be interesting to discover whether similar procedure was at times followed in the case of Christian students or only in the case of Jews.

vobis Rabi Samueli, & Joseph insignia huiusmodi recipiendi etiam facultatem concedimus, ac vobis quod, postquam promoti fueritis, omnibus & singulis privilegiis, facultatibus, praerogativis, indultis, exemptionibus, & immunitatibus, quibus alii Artium, & Medicinae Doctores in quibuscumque Universitatibus Studiorum generalium promoti utuntur, potiuntur, & gaudent, ac uti, potiri, & gaudere poterunt quomodolibet in futurum, uti, potiri, & gaudere possitis, & debeatis in omnibus, & per omnia, ac si in aliqua Universitate Studii generalis ad dictum gradum promoti essetis, motu, scientia, auctoritate, & tenore praedictis indulgemus.

THE SCIENTIFIC LIFE OF THOMAS BARTHOLIN¹

By JOHN H. SKAVLEM, M.D.,

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THE name Bartholin was for a long period of time so intimately associated with the early development of scientific life in the University of Copenhagen as to amply justify reference to the institution of that period as the school of the Bartholins. After the fostering of this scientific interest by Caspar Bartholin the culmination of this development may be said to have been presented during the time when Thomas Bartholin, as anatomical professor, was the guiding power. Here he gathered about him a learned assemblage of disciples both Danish and foreign. Because of the general use of Latin in his scientific teachings he was able to deal with students of all tongues and the result was the establishment of a school of men from all parts of the world. He utilized the highest moral and intellectual faculties which he possessed to instil into his followers the love of scientific truths and endeavoured to have his school stand for the highest grade of investigations. By these endeavours he brought the school up to such a standard that its anatomical teachings, later promulgated and further developed by such followers as Michael Lyser, George Seger, Martin Bogdan, H. DeMoinichin, Ole Borch, Nels Stensen and others, will have everlasting effects on medical science. Moreover, it assumed a prominent position in the progressive development of Denmark.

Thomas, born in 1616, was but thirteen years old when his father Caspar Bartholin died, but his uncle and guardian, Ole Worm, so aptly assumed the parental position that the youth could not have found himself under more favorable circumstances for encouragement and guidance in the scientific

life he was destined to lead. With the intention of entering the ministry he first devoted himself to the study of theology, but soon forsook this following and turned to medicine in which field the predestined calling of anatomy soon prevailed upon him. In 1636 he served as secretary to the first division of Worm's medical institution and shortly afterward went abroad, where his father's reputation and Worm's recommendations gained for him warm receptions and advantageous distinction. He first went to Holland, which was at that time one of the scientific literary centers of the world, and studied at Leyden. While there he was urged by several book dealers to prepare a new illustrated edition of his father's anatomy. But the text of such an edition would necessarily have had to be augmented by the recent works, such as the investigations of Harvey, Aselli and others, and thus it presented a task too great to be creditably handled by young Bartholin, who was then only twenty-five years old. The work was made possible, however, by the offer of assistance from elder friends. Sylvius, professor in Utrecht, communicated to him some original remarks on the structure of the heart, and Waleus, with whom he stayed in Leyden, imparted additions on the circulation of the blood and descriptions of the milk vessels, besides serving as critic. Thus was made possible the edition of the first revised anatomy in 1641.

Bartholin, because of his poor health and fear of consumption, left Holland in 1640 and went to Paris. Here he prepared a new edition of his father's work "*De Pygmæis*," which, however, was never published. From Paris he went to Montpellier, where he

¹Read before the Wisconsin Medical Historical Seminar.

gained recognition by openly opposing a paper on the lacteals, the author of which was unknown. In the spring of 1642 he went to Padua's famous university where at that time many Danish students continued their work. Here he was received into the hospitality of Johannes Rhode, who was born in Copenhagen in 1581, but who since 1614 had resided in Padua as a successful physician and teacher. Through him Bartholin became acquainted with John Vesling, a German anatomist, who promised Bartholin his assistance in preparing a second new edition of the "Anatomy," which a Venetian book dealer desired to publish. This book, however, came out in Leyden in 1643.

After a couple of years sojourn in upper Italy he went by way of Rome to Naples, where he met the famous zoologist, Marcus Aurelius Severinus. While here he was offered a professorship of philosophy in Messina, which he declined. He then went to Sicily from whence he intended to push on to Egypt but unfavorable circumstances prevented him so he went to Malta. While here he prepared a dissertation "De Glossopetris" which concerned an old legend. According to this fable the tongue of a snake which had been killed while crawling upon the arm of the Apostle Paul, had become petrified and possessed marvelous medicative properties. This dissertation is spoken of among his works of 1644 but was never published.

In 1644 he again returned to Padua, where he produced his work "De Unicornu," which came out in 1645, dedicated to his grandfather, Thomas Finck. In this writing he discussed the old tradition regarding the curative properties of the tooth of the unicorn, and furthermore spoke of the healing powers of all kinds of teeth. Thus he recommends pulverized rhinoceros tooth for headache. During all his journeys he deeply concerned himself investigating old traditions of the curative properties of

various inert objects and the existence of terrible monsters, described but never seen, and collected curiosities of all kinds for Worm's museum.

Setting out for home he stopped at Basel, where he, just as his father and Worm had done, received his doctor's degree from Bauhin in 1645. From here he went to Frankrig and Holland where he stayed for some time and would have remained longer if Worm had not repeatedly urged him to return home. While Bartholin was still in Padua, Worm had planned that he should come home and replace his grandfather, Thomas Finck, on the Copenhagen faculty, as the latter was becoming too old to retain his position. Bartholin answered that he was too young and said he wanted to attain greater learning and experience before he settled down to a quiet steady vocation. Worm persisted in urging him to return home but Bartholin remained firm. In 1645 Worm wrote that there were two professorships vacant, one *Professor Oratoria* and the other *Professor Elegnatorium*. To the former Bartholin's brother was chosen and Worm wanted Thomas to accept the other. Although Bartholin then left Basel he went to Holland, where the second edition of his anatomy was published (1645). In the interim the position was filled. Later in the year the professorship of theology was made vacant and Worm again urged Bartholin to hurry home and seek the chair which was then to be called *Professor Ethicæ*. But Bartholin failed to hurry and when he finally did return home during the course of the summer the chair had been filled. But Worm soon had new plans for him. Prince Christian during the winter of 1646-47 was taken sick and planned a journey for his health. Worm immediately set to work to have Bartholin attend him but nothing came of this. In 1647 Bartholin succeeded Longomontanus as professor of mathematics in the University of Copenhagen and in 1648 ascended to the chair of anatomy as successor

to Simon Paulli. Finally he had entered the province to which his nature and inheritance called him.

The same year, 1645, that Bartholin issued his second edition of the "Anatomy," there appeared a sharp criticism against his anatomical views written by Caspar Hofman, first professor at the medical college in Altorf. Among other things for which Hofman criticized him was his opinion regarding the mechanism of respiration. In reply to this Bartholin also came into opposition with Cartesius's theory regarding this. Cartesius maintained that the air rushed into the lung and dilated it, because that part of the surrounding air which was displaced by the expansion of the chest could find no other place to go. Against this Bartholin argued that the expansion of the chest did not necessarily cause a movement of the surrounding air, but that there might be a compression of the air, and cited, for example, that the finest feather placed in close proximity to the chest was not disturbed by the chest expansion.

In another place Bartholin, who with many of the elder anatomists regarded the hair as some sort of an excrement or a result of the earth's dampness and not a true part of the body, stated that the hair was not nourished by the blood. He confirms his beliefs by relating stories of how hair grew on hides and other dead organic material, and also cites Paré who speaks of having an embalmed body in his house for twenty-five years, on which the hair and nails grew out as often as he clipped them. Hofman taught that the hair was nourished by the blood. Another scholar who, against Galen and with Hippocrates, taught that the hair was nourished from within, was Plemp, a Dutch doctor and disciple of Sprengel. He said that the hair was a part of the body, having life with it; but he did not dare deny that hair continued to grow on hides. In order to explain this last condition he described a kind of vegetative life which

continued for a time after the body's death. But Bartholin remained unconvinced and the absurd citation from Paré still remained in the last edition of his "Anatomy" (1673).

About this time Bartholin was made the victim of a long continued and bitter criticism from the pen of Riolan. He speaks



THOMAS BARTHOLIN.

of Bartholin as having in several places inserted the investigations of others without naming his source, criticizes him for not carrying on more independent and original investigations and points with ridicule to a discussion found in Bartholin's "Anatomy," where he describes the development of a child in the stomach with subsequent birth through the mouth. Bartholin here cites as his authority Salmuth, a physician in Anhalt.

The third edition of Bartholin's "Anatomy" was published by Hack in Leyden in 1651. This book presented a distinct improvement over the earlier editions not only because of many changes brought

about by the criticisms of others but especially because it contained the results of some of Bartholin's own dissections, which he had performed since his occupation of the anatomical chair with acquisition of the new anatomical theatre, for example, the discovery of a new muscle, *musculus psoas minor*. The arrangement is almost entirely new but all the original material from his father is yet included as, for example, the description of *capsulæ atrabiliares*. The greater part of Vesalius's figures are replaced by others borrowed from Casserius and Vesling.

Several prints of this edition published by Vlack in Haag after 1655, are designated as the fourth edition on the title page but they are identical with the previous books except for the added chapters on the chyle and lymph vessels. The true fourth edition came out in 1673. This is the most complete of all and is the first which contains Caspar Bartholin's and his son's works in entirety. There are also presented the new discoveries of such workers as Wharton, Steno, Graaf and Malpighi. This book was again issued in 1686 with the same arrangement as the fifth edition.

We now come to a consideration of the most important phase of Bartholin's scientific life, that which deals with his discoveries of the lymph system; events overshadowing all his other illustrious additions to anatomy. It was at this time, following his appointment to the chair of anatomy, that Bartholin first began to stand forth, not only as a man well versed in the works of others, but as an original investigator, who was eager and capable of carrying on original researches and guiding others in like directions.

But before we proceed with his accomplishments let us stop a moment to view the scene and setting of his teaching activities. This is the anatomical theatre of Copenhagen, about which Bartholin himself has given a detailed description in

his work "*Domus Anatomica Havniensis*" (1662). The building was erected in 1644 during the time of Simon Paulli. In the center of the theatre was placed the dissecting table surrounded by four rows of folding chairs. The walls were decorated with skeletons of various animals, donated by Simon Paulli. On one of the end walls stood a male and female skeleton, called Adam and Eve, with a tree encircled by a snake between them, representing the tree of wisdom of the Bible. Bartholin remarks in explanation that the male skeleton was of a man actually named Adam but the female had been named Inger.

Bartholin's word leaves little doubt that human dissection had not been generally carried on in Copenhagen before the local order (1644) which allowed it. During the later years of Bartholin's professorship, dissections were held openly but prior to this restrictions of entrance were deemed necessary. In Simon Paulli's time, each man had to wear an entrance badge to gain admittance to the theatre. The badge, which cost a dollar, consisted of a quoit of lead with the words "*Tessera anatomica*" on one side and on the other a skull with cross bones, three ears of corn and the inscription "*Secca viriscent ut semina*." Later this custom was given up and all adults were admitted.

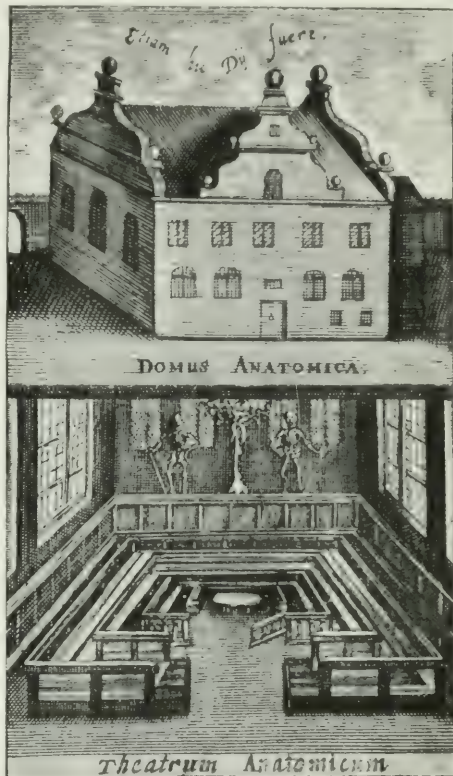
Here it was that Bartholin performed his open and private dissections, now and then honored with the presence of the King seated in the royal box, which was placed outside of the theatre itself but communicating with it by windows. Here it was that he officiated as a teacher with lectures, demonstrations, and practical instruction in dissecting, and gathered about him his learned assemblage of disciples from all parts of the world. Here it was that he made discoveries and announced teachings which have withstood the scrutiny of investigations down to today.

The question of how the food after digestion conveyed nutrition to the blood and finally became available to the body's use was one about which the anatomists and physiologists of the Middle Ages could only conjecture. The general idea was that the intestinal veins absorbed the flowing chyle and bore it in their blood to the liver, which was regarded as the blood forming organ, an idea which was evidently founded and substantiated on the ground that the large blood vessels ran to the liver and then became lost in fine branchings.

It was something entirely new and unknown when Aselli of Cremona, in 1622 discovered the "milk vessels," in the mesentery of a dog, after which they were soon found in man.²

These white vessels had undoubtedly been noticed by previous anatomists, such as Hippocrates, but they had given them no concern, and it was only now made known that it was these and not the veins which constituted the connection between the intestines and the blood. In the face of much opposition Aselli's teaching slowly gained recognition, but even then the truth was only half known, because both he and those who stood by him thought that the chyle went through the lacteals to the liver, there to be transformed into blood. It was therefore a revelation of far reaching effects on physiology when John Pequet in 1649 working on a dog, discovered how all the contents of the lacteals gathered into one receptacle, *receptaculum chyli*. From here it was carried through the thoracic duct following the blood system and finally poured through a valve guarded orifice into the left subclavian vein where it blended with the blood flowing to the heart.³ Thus the famous anatomist from

Dieppe correctly disproved that the liver had anything to do with the formation of the blood, but served simply to rinse the blood of the gall just as the kidney cleansed the blood of urine. Pequet's discoveries which were set forth in a masterly



The Anatomical Theatre of THOMAS BARTHOLIN.

little dissertation called "*Experimenta nova anatomica quibus encognitum chyle receptaculum deteguntur*"⁴ were so violent and revolutionary that he had to champion his views for a long time against precedent and ignorance. In this controversy Bartholin took a very active part, after he had accepted Pequet's teachings in their entirety.

Pequet's discovery was first officially published in 1651 but Bartholin was first in-

² Breehet in 1628. Heller from Vesling in Padua, 1634.

³ The thoracic duct had been observed in the sixteenth century in the horse of Eustachius but had been mistaken for a vein.

⁴ Paris, 1651.

formed of it by a letter from his brother Dr. Erasmus Bartholin, whereupon he shortly afterwards set about to search for the same vessels in the human. He succeeded in finding them in the cadavers of two criminals, donated to him by King Frederick III for this purpose, after which he gave out a description of them in the form of a dissertation entitled, "De lacteis thoracis in homine brutisque nuperrime observatis," Hafniæ, 1652. In this presentation, which included a diagram, not altogether correct, he varied somewhat from the descriptions of Pequet, partly due to minor observations on the part of both, partly due to the differences existing in individuals of the same species, but mostly due to the difference between the human and other mammals, which latter Pequet alone had examined. Bartholin correctly described the thoracic duct as arising from three roots, the lumbar trunks and the *truncus celiacus*, which he indicated as arising from three glands. This may be interpreted to mean the *lumbar plexus* and *plexus celiacus*, in which case he evidently overlooked the *receptaculum chyli*, apparently expecting to find that structure larger in the human than he actually did. It is possible that his most medial gland was not the *plexus celiacus* but the *receptaculum chyli*, especially if he had made his observations on an individual in whom, as occasionally occurs, this structure is not a dilatation of the thoracic duct but of the intestinal trunk. The first explanation seems to be the most logical excuse for his error since in his last edition of the "Anatomy" in 1673 he speaks of the *receptaculum chyli* as a structure which is not always present in man, but he regards his three glands as constant, although he at the same time remarks that Rudbeck pictures the *receptaculum* under the name *saccus lacteus*. The figure which Bartholin printed in his "Anatomy" in 1673 is the same as Rudbeck sent to him through Vilhem Worm, after

he had conceded in a publication that he had first overlooked the *receptaculum* and believed that the three glands replaced it. He now knew that this structure was also found in humans, but in a correspondingly smaller size. (Pequet had not seen this plexus, his presentation described only the thoracic duct with all the previously described branches cut off.)

Of greater significance was Bartholin's variation from Pequet's view in that he maintained that not all the chyle went through the thoracic duct but a part went to the liver through some small vessels closely twined around the veins, which he with Aselli took for chyle vessels, against which Pequet taught that all the chyle went directly through the thoracic duct. Bartholin conceded that the content of these vessels was not of the usual appearance and consistency of chyle; but, held down by the scruples of reverence for authority and tradition, he sought to explain the variation by the fact that sometimes the chyle was thinner, especially after passing through the glands in the mesentery. He hesitated, therefore, to draw the conclusion that Pequet had set forth regarding the formation of the blood, and, instead of eliminating the liver entirely from this function, he wanted to divide the process between the liver and the heart. To the latter Pequet assigned the entire function. He speaks of having found similar vessels, filled with serum, coursing among the intestines and in the fore limb, but realized the incompleteness and probable fallacies of his investigations. He reports that P. Bourdelot on his visit to Svenig, where he had been called by the Queen, Christina, stopped for a while in Copenhagen and was present at a dissection where he demonstrated these vessels to the liver, and Bourdelot would not recognize them as chyle vessels. But Bartholin reasoned, what are they then?

The descriptions of Aselli, Highmore and others all stated that they were neither

arteries nor veins but chyle vessels, the only other kind of vessels which was known and in such a case they must carry a fluid to the liver. Had he quickly set aside precedents and authority and gone according to his own findings as to where these vessels carried their contents, then he would have at this time recognized the lymph system. His own true idea regarding these vessels can be realized from a letter written to Frederik Arnisaeus dated April 30, 1652, in which he speaks of having made observations on these vessels running to the liver which he hesitates to publish because of authority and tradition. One can rebuke Bartholin for his hesitancy in overthrowing tradition and his unwillingness to break away and draw conclusions from his own findings, but at the same time one must admit that his principle was right, namely, not to hurry his conclusions but first to prove all his findings by extensive experiments and investigations.

Among other questions which he had to consider was the possibility, as so many thought, of the chyle flowing to the uterus and supplying nutrition to the fetus during pregnancy. In this matter he desired to make no definite decision. He expresses himself against the belief that part of the chyle comes to the breast and there appears as mother's milk. Admitting a relation between chyle and lactation he asserts in a mixture of truth and speculation that the product of lactation comes to the breast as chyle, mechanically mixed with the blood and separates from that in the breast.

His own reasoning in view of explaining the apparent difference between the chyle vessels was based on the difference between the contents of the vessels running to the liver and chyle. But this explanation did not satisfy himself and finally in 1652 he and Lyser working together with a dissection succeeded in demonstrating that these vessels carried their contents from, and not to, the liver. They detected this February

28, 1652 in a dog seven hours after death. Vessels filled with a watery fluid were found coursing among the intestines. These ran partly from the liver along the portal vein and partly followed the vena cava from as far down as the iliac branches and the pelvis. When tied these vessels became filled below the ligature. They also observed that those below the diaphragm drained into the *receptaculum chyli*, while similar vessels in the fore limb lying along the axillary vein drained into the jugular or axillary veins. The watery fluid, which flowed out of them when punctured could not be chyle of any sort, and here was truly something entirely new. He had already earlier observed such water vessels in other parts of the body, namely in the fore limb, and now recognized them as forming a system. These results, the most important which Bartholin has added to anatomy, were published in a work "*Vasa Lymphatica nuper Hafniæ in animantibus inventis et hepates, exequiæ*," dedicated to King Frederick III, which came out in May, 1653. Since these vessels described in this last work already had been known for a long time to anatomists it presented nothing new in view of descriptive anatomy. The great revelation was the physiological discovery that they belonged to a heretofore unrecognized or misrepresented system of vessels, which did not bear nutritive fluid directly derived from the digestive organs, but a watery fluid which Bartholin, at least partly right, designated as a residue from the material changes in the organs. This was a new light in the body's make up and was contrary to the theory of Pequet's teachings. Pequet had not spoken of these vessels connected with the liver at all, at least he did not speak of them separately, either because he overlooked them or because he did not take them for chyle vessels and hence did not further question himself as to what they were. But the existence of these vessels was well known to

others and described both by Highmore and Aselli. They thought of them as chyle vessels but not until this recognition of their nature could they with certainty state that the liver received absolutely no chyle and took no part in the formation of blood. Now this fact was scientifically proved, and Bartholin willingly took back what he had spoken in opposition to Pequet in the previous year. From now on he attributed the entire function of blood formation to the heart, as Aristotle among the old and Caspar Hofman among the new had anticipated, and in consequence dedicated this famous epitaph to the liver as a blood former:

Pause	Wayfarer,
Enclosed in this tomb is one who hath entombed very many;	
Prince of thy body, digester and arbiter;	
The liver, known to the ages	
But	
Unknown to nature	
because	
The majesty of his name and dignity	
By report he strengthened,	
By opinion he preserved,	
So long he digested,	
Until with his bloody tyranny himself	
He digested away.	
Depart without liver, wayfarer,	
And concede bile to the liver,	
That without bile will	
Thou wayst digest for thyself. Pray for him.	

Bartholin agreed in his chief points so closely with Pequet in regard to the chyle and blood formation, that shortly after the publication of his work on the lymph vessels he wrote a dissertation entitled "*Dubia anatomicae de lactus thoracices*," which besides comprising a closer description and defense of his view regarding the secretion of mother's milk, and a chapter in which he explains that his new discovery does not set forth anything radically different in the body's processes, also contains a defense for Pequet and his allied views against some arguments which Riolan had presented.

At the earliest possible time he continued his research on the lymph system chiefly for the purpose of finding it in the human, which he succeeded in doing in 1654. Bartholin's publication of this work, dedicated to the Crown Prince Frederick, and entitled "*Vasa Lymphatica in humane nuper inventa*," came out in the spring of 1654 and contained besides a detailed description of his discovery, some remarks on the relation between chyle and mother's milk.

In his works on the thoracic duct in the human and on the lymph vessels Bartholin had incidentally named Riolan and had dedicated his writing on the lymph vessels to him, evidently for the purpose of appeasing him. But his work "*Dubia Anatomica*" was directed against Riolan in which he spoke of Riolan's old age and his consequent inability to carry on new anatomical research, referring to him as anatomist *emeritus*. Through Guido Patin or perhaps through his brother Erasmus, who was in Paris, he had heard that Riolan was writing a paper against him. At the request of Bartholin, Patin requested Riolan to postpone this publication until he had seen Bartholin's last writing in which Bartholin had changed his opinions in many points. But Riolan in 1653 published in Paris the work "*Opuseula anatomica nova*" in which he attacks Bartholin's "*Dubia Anatomica*" and his new theories, without then putting forth any new arguments. He states that the acceptance of the theory that the liver plays no part in blood formation, would necessitate a radical change in body processes, a point which Bartholin had especially denied. Riolan did not dispute the anatomical findings, which he himself had observed in autopsies, but he did not agree with the physiological changes which resulted from Aselli's and Pequet's discoveries. He doubted if the milk and lymph vessels formed a system separate from the arteries, but regarded them as outbranches of the

veins, whereby the thoracic duct came to stand as a connecting channel between the portal vein and the vena cava and he warned young anatomists that their new ideas in many respects were in direct contradiction to the old established theories of physiology.

In 1655 Bartholin published his work "*Defensio vasorum lacteorum et lymphaticum*," a copious writing consisting of five works the first four of which were directed against Riolan's recent publication.

That one must not be too severe in criticising Riolan for not accepting that which to us seems so clear is evident from the fact that even the great Harvey hesitated to express himself on this point. In 1651 a man by the name of Morrison requested him to express his idea of Pequet's discoveries and physiological opinions, and he in a long letter which was published expressed his opposition on practically the same grounds as Riolan had supported his views. He did not present himself as a stubborn opponent of the new discoveries but assumed a position of contemplation which prevented his making definite conclusions. He maintained that part of the chyle went to the uterus during pregnancy and served as food for the fetus, just as if it were taken through the mouth. Bartholin had held this view in his first writing but had forsaken it after the discovery of the lymph system. He wrote to Harvey concerning this but received no reply, as far as can be learned. Harvey again expressed himself to a friend of Bartholins, John Van Horst, a doctor in Nessen Darmstadt, who requested Harvey to express himself on this question and repeated what he had said in his earlier letter to Morrison. Horst also asked Bartholin for his view on the subject and received in reply an extensive discussion in which are reviewed Harvey's remarks to Morrison and Bartholin's opposing views.

Harvey, who was too old and weak to

take an active part in the controversy, never answered, but Riolan in 1655 published a rebuttal of the new teaching. Riolan's arguments are of the same nature as before and are scarcely worthy of the consideration as a reply. Near the end of the same year Bartholin published his "*Specilegium ex vasis Lymphaticis*," in which a chapter deals with Riolan's last work, and another speaks of Pequet's publications, in which is set forth his opinion that it is lymph which passes through the *ductus Versungianus*, whose function since its discovery in 1642 had been much disputed. But the greater part of the work is taken up with a criticism of the views on the lymph system which Glisson had put forth in his "*Anatomia Hepatis*" of 1654. Glisson remarks that he had observed that these vessels bore their contents from and not to the liver and he sets forth some hypotheses regarding the physiological significance of these vessels. He maintained that the lymph was formed from a "*halitus*," an exudation from the arteries with a mixture of material derived from the nerves, which Glisson with other older anatomists regarded as humor bearing. Against this Bartholin strongly urged that the nerves possessed no inner channel, and that there was no movement of fluid through their substance.

As so often happens in scientific history, when many workers are diverting their attention to the same question it follows that two investigators independently and unknown to each other pursue like lines of research and arrive at conclusions almost identical. The cited differences between the opinions of Aselli, Highmore and others regarding the relation of the chyle vessels to the liver, brought forth many diverse descriptions of the same, and Pequet's certain proof that absolutely no chyle went to the liver could not help but arouse the activity of all anatomical and physiological workers. Not only Bartholin but all other

workers realized that the first step toward the ultimate solution of these differences would lie in recognizing the nature of these vessels. Bartholin clearly expresses this in his work on the thoracic duct in 1652, where he explicitly directs his attention to these vessels and their contents, and states that similar vessels are found in other parts of the body. "But," says Bartholin, "one knows of no other kind of vessels except blood and chyle vessels." In truth it was impossible to come nearer to a discovery without proclaiming it. It was more than a half year before he finally set aside his own doubts and published his new writing on the lymph system in the spring of 1653.

A few months later there appeared in Sverig a publication by a very able young anatomist, Ole Rudbeck, "*Nova exercitatio anatomica exhibens ductus hepaticos aquosos, et vasa glandularum serosa, nunc primum inventa, aeneiisque figuris delineata ab Olao Rudbeck,*" Arosiæ, 1653, in which he set forth in all essentials the same results as Bartholin, but stated that he had found them earlier than this. The first news of Rudbeck's work seems to have reached Copenhagen through Vilhelm Worm, in a letter to his father, Ole Worm. Later in a letter dated February 2, 1654, Vilhelm Worm sent Bartholin a copy of Rudbeck's work on the *receptaculum chyli* in the human, and from that time the feud of priority dates. Bartholin had sent copies of his work on the milk and lymph vessels to Hemsterhuys in Leyden for him to publish. In his work on the discovery of the lymph vessels he had inserted dates for the first discovery of the water bearing vessels from the liver, and shortly after, where the first edition simply stated "Feb. 28" as the date when he together with Lyser had first found that the vessels bore a fluid from and not to the liver, he inserted "Anno 1652." Rudbeck who was in Leyden, and whose work on these vessels was also in the hands of Hemsterhuys had occasion to see Bar-

tholin's work in corrected form ready for publication. He then wrote a letter to Hemsterhuys, the publisher, who inserted it into Rudbeck's book, "*Messis auria triennialis.*" In this letter which is dated December 23, 1653, in order to establish his priority, he argues that the date "Feb. 28" which appeared in Bartholin's first edition must mean 1653 the same year as the publication appeared, not 1652 and he insinuates that Bartholin after having seen Rudbeck's work had made the change. He states that he had demonstrated these vessels in April, 1652 in Stockholm, in the presence of Queen Christina and many bystanders.

A Polish student by the name of Martin Bogdan now took upon himself the task of attempting to establish the priority in a publication in which he accuses Rudbeck of having stolen in all cases the essentials of his work from Bartholin, an opinion which Ole Worm also had expressed even before he had seen Rudbeck's letter to Hemsterhuys. As soon as Rudbeck had received Bogdan's accusation he answered with a paper entitled, "*Insidiæ structæ, Olai Rudbeckii Succu ductibus hepaticis aquosis, et vasis glandularum serosis — Arosiæ editis a Thoma Bartholin — Ludg Bat, 1654.*" In this he makes a point blank accusation of plagiarism with the previously mentioned arguments; ends with some critical remarks about Bartholin's work in which he describes Bartholin as being the true author of the accusation written by Bogdan. Bogdan was not late in replying with more bitterness and violence than ever, in a publication, "*Apologia pro vasis lymphaticis contra insidias secundo structas ab Olao Rudbecko,*" containing a letter from Bartholin to Bogdan. Rudbeck later argued for his priority in a dissertation "*De sero eisque vasa*" Opsala, 1661, on the ground of his report of this investigation in his letter to Hemsterhuys, his writing against Bogdan and a letter to Bartholin

himself, in none of which is there much bitterness expressed. Bartholin's disciple Seger, later issued a publication against Rudbeck, "*De quiddetate lymphæ Bartholineanæ*," 1658, but Bartholin himself took no great part in the controversy.

Concerning the definite settlement of priority one still hears different opinions expressed but from the first it can be noticed that there is no grounds to doubt either Bartholin's or Rudbeck's sincerity and honesty. That Bartholin should have heard of Rudbeck's demonstrating these vessels in a dissection before Queen Christina in April 1652 and later seeking them himself is disproven by the fact that long before this he had shown them to Bourdelot in Copenhagen and discussed with him as to their nature and probable contents. That Rudbeck might have at least known some of the anatomical relations before Bartholin is possible since he had shown some of his tables to Van Horne, but these relations were also well known to older anatomists as Aselli. The revelation was the recognition of their physiological significance and it is by no means impossible that in this respect Rudbeck was informed through Bartholin. Nevertheless this cannot be absolutely established. From a scientific standpoint it is, as Bartholin states in a passage of anatomy, enough that the discovery is made, by whom it was done is only a vain and pretentious question. Haller's later argument for Rudbeck's priority because of the fact that Bartholin uses the term "*serosus*" which is identical with the nomenclature employed by Rudbeck is a weak argument. The application of the term "*serosus*" to the contents of these vessels had already been used by Bartholin in 1652 in his work on the thoracic duct, and one could correctly state that Rudbeck had taken the term from Bartholin. Haller in his "*Elementary Physiology*,"⁵ asserts that Vesling in his

letters and other writings had often spoken of observations of these vessels, which undoubtedly must have been lymph vessels, and accuses Bartholin of stealing his knowledge from these sources. But surely if Vesling had once published them what credit would it have been for Bartholin to put them forward again? But as Haller also concedes, Vesling in his writings says no more than was known already to Aselli and others of the older investigators.

The English sometimes take occasion to put forth the name of Joliffe in this connection, but they have no right to place him beside either Bartholin or Rudbeck, as the only evidence of his investigations, is a passage in Glisson's "*Anatomia Hepatis*," which came out the year after Bartholin's and Rudbeck's work. It cannot be said from this that he ever made any special observation or did more than to state something which had already been made clear, namely that Aselli's liver chyle vessels contained a watery fluid which was not identical with chyle.

We cannot be mistaken in saying that the discovery brought great honor to both Bartholin and Rudbeck. When we state that Rudbeck was the one who first began the investigation and at least from an anatomical view point deserves the advantage but that Bartholin was the one who first pushed forward and advanced the investigation, taking upon himself the responsibility for it; that Rudbeck later added more than Bartholin to the anatomical knowledge of the lymph system, chiefly in his table contained in his publication "*Messis aurea*" but that Bartholin added more than Rudbeck to establish the truth of the discovery and its physiological significance, then satisfaction is established on both sides without detracting from the glory of either.

The English investigator Wharton,⁶

⁵ *Despectus de Lacteis thoracicis*, 1652, and later on *Lymphækarren*, 1653.

⁶ 1757, i, 158.

author of the famous work on glands, opposed Bartholin's views regarding the vessels of the liver. Bartholin answered this in 1653 in which publication he also explained the identity of spit and lymph. Wharton also defended Joliffe's claim to the discovery of the lymph vessels after Glisson's example.

At this time Jonekheer Louys de Bils, Heer von Koppensdamme, who was gaining much notoriety because of his much spoken of embalmed bodies and bloodless dissections on dogs, stated that the new teaching regarding the chyle and the function of the thoracic duct was false, and that in reality the chyle was born to the liver by the mesenteric veins, blended with the blood, while the thoracic duct, or what he called "roriferus" carried lymph, which from here was conveyed through out the body by small canals to be finally used up as spit, tears, etc. Bartholin issued a publication in 1660 in which he speaks of Bils but refers to him simply as a foolish, weak character unworthy of serious consideration.

Bils' friend, Nicholas Vasa, physician in Rotterdam, wrote a reply in 1661 in Dutch and Latin, which came out together with a collection of earlier publications of Bils' investigations. This writing contained nothing new scientifically but was very personal. Among other things he said, that Bils had stated in his and other peoples presence, that if Bartholin would meet him in a public dissection in Holland he would show Bartholin how far behind he was in his art. He could as an intimate friend of Bils' promise, that if the king of Denmark would allow it Bils was ready to go and show not by words but by deeds, that Bartholin was perhaps more able to talk, but Bils more able to work.

Ole Borch, Bartholin's disciple and friend, at that time in Leyden, in a letter dated March 3, 1661, tells how after the publication of this letter he had gone to Rotterdam

in company with Nicolas Steno and two other Danish students. After they had met Bils, they asked him if he would stand by the challenge which Zass had made. But Bils denied this, he would not come to Copenhagen except if a kingly reward was given to him, he would not meet Bartholin half way but if Bartholin would come to Holland then he would demonstrate the correctness of all his views. He showed them his mummies and dissected a dog for them, demonstrating that the thoracic duct contained lymph and showed them a vessel which he described as a milk vessel, which went to the liver, but Borch said that he could not see that it was any different than a lymph vessel. He had injured the liver and some blood had gathered in a clot which he used as an excuse of not being able to demonstrate the disputed point any further but promised to do so another time and with this Borch and his friends had to be satisfied. Bartholin made his reply in a publication, "*Responsio de experimentis anatomicis Bilsianis.*" February 28, 1661.

Henrik Moinichin, a disciple of Bartholin's, while in Holland in 1660 on Bartholin's request visited Bils for the purpose of finding out his exact views. In the first place Moinichin as a common traveler, came to Bils' home and paid his dollar to enter and view the embalmed corpse, which he found very interesting as a curiosity but not especially for dissection, as the finer structures were not preserved. He asked Bils to show him a dissection, so as to demonstrate the correctness of his teachings about the chyle, but Bils evaded and asked him to come again in a week's time. Moinichin repeated his visit at the appointed time, but this time he carried a letter of introduction from an acquaintance in Amsterdam telling that the bearer himself was an anatomist. Bils again evaded and asked to convince him with charts, by which so many other people had been

satisfied, but Moinichin naturally would not be satisfied with anything except practical demonstration and began to argue that the presumed movement of the chyle was impossible because of the presence of valves in the vessels. Bils answered that if Moinichin could show him valves, then he would openly take back all he had taught, but when Moinichin offered to do it then and there Bils withdrew his offer. After a long discussion Moinichin and Steno, who had accompanied him finally had to leave Rotterdam with the matter unsettled. Bartholin speaks of all this in his reply to Zass and urges him as a friend of Bils' to tell him that such obstinacy and unwillingness to demonstrate his views would only hurt him.

Later Steno in his famous dissertation "*De glandulis oris*," 1661, attacks Bils and ridicules his experimental procedure which he shows to be faulty. Steno alluded to Deusing, professor in Groningen, who had praised Bils' ability and had defended his theory of the distribution of lymph throughout the body by canals, leading out from the thoracic duct. Deusing was a learned man in many respects, especially in philology, with great ability to write and argue but he never dissected so much as a dog. Steno justly criticised him because he was not an investigator but simply dealt with anatomy and physiology according to pre-established methods.

Later Bartholin issued another publication in which he quotes the works of his disciples, chiefly Steno and John Henrik Pauli. In the work of Pauli there arose the oft-discussed question of the existence of pores through which the chyle could pass from the intestines into the chyle vessels, which Cartesius had first discovered but which Pauli opposed.

While Bartholin's last paper was still in the press, Deusing died in 1666, and Bils had already in 1661 left Holland and gone to Flanders. Later Bils modified his physiolog-

ical ideas and withdrew some of the worst of his theories.

Bartholin later gathered all his writings in this matter and published them under one title in 1670. The chief points of his findings and his arguments are found in his edition of anatomy of 1673.

One can see from these writings that he had no idea that these vessels all belonged to one system. He described the thoracic duct as belonging to the chyle vessels and a condition as if the lymph vessels lacked a main stem, but borrowed the chyle vessels to send their contents to the heart.

About this time Bartholin also published a number of smaller writings on various zoological and medical subjects. It must have been that his great activity and interest along all scientific lines gave him occasion to carry on many more or less independent investigations, which did not aptly fit into his larger works and since there was no periodical at that time these had to be published in assembled lots. It was because of this condition that so many minor writings at that time were issued in the form of letters or collections of letters. Among this collection of writings are found descriptions of monsters and other wondrous phenomena. In the article "*De Unicornu Africano*," he simply imparts what he had heard about the animal from a person who passed through Copenhagen on his way from Africa to Russia. In another article he speaks of a snake that hatched out of a hen's egg and cites as his authority, Licetus in Bologna, or rather his kitchen maid, Julia, who reported having often seen such phenomena in her home town. An oft discussed question of whether the rooster could lay an egg was also presented under separate title. One day it was reported at the royal palace that one of the roosters of the royal henchery had laid an egg. The servants were all agreed that none other than the rooster could have laid it. The remarkable story was told to the king and he referred the matter to Bartholin.

The king ordered that on the 10th of April 1651, Bartholin should open and examine the intestines of the egg laying rooster. Naturally the intestines were found entirely normal and in order to explain the remarkable egg laying ability he saw no other way than to conceive that the egg was developed in the stomach and laid through the mouth. The skeleton of this rooster was mounted and placed in the royal museum. In this connection Bartholin again took occasion to refer to Salmuth's story of the tailor's wife who bore a child through her mouth.

"Cista Medica," which was published in 1662, was also a similar collection of small writings which were chiefly concerned with scientific and medical history in Denmark. The lack of periodicals necessitated that a person's opinions be expressed in the form of letters so that a collection of letters from those times takes on the character of a sort of scientific archive. Bartholin carried on correspondence with many of the great teachers of Europe which he had met on his journeys and after the number of his disciples had increased and these had gone abroad or scattered about in pursuit of the practice of medicine out of reach of his personal attention, correspondence was resorted to whenever they desired help or encouragement in any investigation. It was therefore natural that Bartholin as soon as he found time for literary pursuits began to publish these correspondences, of which 400 numbers came out under the title of "*Epistolarum Medicinalum Centuriæ*" (ii-v, 1663-1667) and eventually three more volumes would have been published, had not his manuscripts been burned in the fire which destroyed his home in 1670. Denmark finally possessed its own scientific periodical in, *Acta Medica et Philosophica Hafniensia*, whose foundation is one of Bartholin's greatest accomplishments, and one of the most striking representations of what an intellectual life he had lived. There appeared five volumes of this publication

beset with tables and abstracts of recent writings of scientific contents, now and then accompanied by short remarks. This publication ceased with Bartholin's death in 1680 and it was a long time before a similar organ took its place.

One of his later publications in 1674 is of great significance because in it he urged that pathological anatomy should be recognized from the normal relations, a purpose which Bartholin had often taken occasion to encourage. In 1665 he published a popular dissertation on comets in which he, in explaining the presence of a large comet, ventures the supposition that one can picture it as a sort of abscess or other object of pathological origin, and in which this pathological condition of the sky is associated with conditions on earth, as monsters and in the dissertation he describes a couple of monsters. In a later letter he says that he does not want this writing to be considered a scientific bit of work.

Bartholin also gave out several writings which had been edited by others as his disciples. Thus in 1663 he gave out Malpighi's two letters on the structure of the lung. Of less importance is his edition of Joe Holst's, "*De flammula cordis*," 1667, in which the author puts forth the view that in the left ventricle there exists a continual fire or spirits flame, which furnishes the body heat. Bartholin adds some remarks in which he does not deny that there is such a continuous fire but does oppose Holst's idea that this fire is fed by nerve juice, the existence of which Bartholin denies, although Glisson and Andræ recognize it.

On the 9th of February, 1656, Bartholin performed his last open dissection, not because he wanted to set aside anatomy entirely, but because his health would not permit him to keep up the pace of his activity; also perhaps, as he once expressed it, because he thought he had done enough in that line. In 1660 he received the royal permission to withdraw entirely from his

professional duties to spend his days on an estate, Hagestedgaard, donated to him by the king. From here he directed practically all Danish medical investigations and dominated the medical faculty. In 1670 his estate burned with his famous and costly library containing a great many unpublished manuscripts. This incident occasioned no break in his literary activities as he continued to rewrite and publish several of his former works. Following the destruction of his estate he became university librarian and, in 1675, was appointed bench or judge lateral in the superior court of judicature; a peculiar advancement, but one which at that time was not unusual for an anatomist or doctor. In the same year he was given an expression of how greatly he was regarded abroad when Badua's famous university offered to him its professorship of anatomy. This offer, to fill that chair which had been occupied by so many great scientific men, he was forced to refuse because of his failing health.

While still in the midst of his literary pursuits he died in Copenhagen in 1680, mourned but praised by the host of friends, admirers and disciples he had won unto himself. In his teaching activities he had utilized the highest moral and intellectual faculties which he possessed to instil into his followers the love of scientific truths. Worm's faithful guidance and teachings

had established in him a principle that it was better for himself and scientific knowledge to wait and procure true, well-established results than to push forward incomplete, presupposing opinions. In all his physiological investigations he maintained a conservative standard of waiting for positive results in order to avoid making mistakes in practical medicine. All his interest, knowledge and activity as a scientific man was concentrated in the furtherance of medical science. It was the purpose to perform and fill the needs of this art that bound together his scientific activity as a whole. He dissected animals because the results by analogy could enlighten the structure of human make-up and he worked in human anatomy because it was of the greatest significance for practical medical art. In all cases he presented an inspiring example in untiring activity, a true, fast love for scientific knowledge and a loyal conscientiousness in his scientific efforts which could not help but work to the best advantage in promoting the advancement of scientific knowledge and its flourishing in his native land.

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EDITORIALS

STANTON A. FRIEDBERG, M.D.

It is with the deepest regret that we record the death at Chicago on May 27, 1920, of this well-known laryngologist and student of medical history. Born in Chicago on December 1, 1875, Dr. Friedberg graduated from Rush Medical College in 1897. Early in his professional career he became associated with the late Dr. Fletcher Ingalls and soon acquired an assured position in his specialty. In November, 1918 he was commissioned Major in the Medical Corps, U.S.A. and served eight months in the Base Hospital at Camp Doniphan, Fort Sill, Oklahoma. In September 1919 he went to France with Base Hospital 85. He served eight months with the A.E.F., and received his discharge from the army on May 1, 1919. Dr. Friedberg was deeply interested in medical history and made some notable contributions to it, especially on the early history of oto-laryngology. He had formed a valuable collection of books, engravings, and monographs on this subject, and had a unique series of the basic texts in oto-laryngology which he had arranged in his library in chronological sequence. He succeeded the late Mortimer Frank as secretary of the Chicago Medical History Society and as such was the editor of its *Bulletin*. His pleasant personality, scholarship, and enthusiasm made him a delightful companion. One of the most notable of his characteristics was the generosity with which he permitted others to share in the treasures he collected and with which he

sought to aid those engaged in similar interests.

APPOINTMENT OF DR. MENETRIER

Dr. Pierre-Eugene Menetrier has recently been appointed Professor of the History of Medicine in the Paris Medical Faculty. He was born in 1859, and graduated in 1887, at which time he presented a dissertation on grippe and pneumonia. Professor Menetrier is an excellent pathologist and internist, on which subjects he has written well; as yet he has written nothing on the history of medicine. He is said, however, to be a well-informed and well-instructed man.

His predecessors in this chair of history have been;

1795-1799 Goulin
1799-1808 Cabanis
1808-1817 Vacant
1818-1822 Moreau (de la Sarthe)
1823-1869 Vacant
1870-1872 Daremberg
1873-1875 Lorain
1876-1879 Parrot
1879-1899 Laboulbène.
1899-1920 Vacant
1920- Menetrier

Laboulbène, who held the chair for twenty years, was remarkable for the "magistral" character of his lectures, dealing with such themes as medical geography, biography, history of medical journalism, of the Paris Faculty, the Hippocratic books, etc. His greatest work was his history of the Charité Hospital (18-8).

PREMIER CONGRES DE L'HISTOIRE DE L'ART DE GUERIR

The meeting of the first Congress on the History of Medicine was an event of the first importance to those interested in the subject. It was held at Antwerp from August 7 to August 12, 1920. The preliminary program has already been published in the *Annals*. The completed program is sufficient indication of the great value of the gathering to medical historians. It is unfortunate that no delegates from the United States appear on the list of its members. France was represented by many distinguished scholars and England was fortunate in sending Dr. Charles Singer. From the list of papers presented to the Congress we select the titles of a few which will suffice to show something of the nature and value of the communications read before it.

Dr. Marcel Baudoin, Directeur du musée pré-historique de Vendée. "Comment on découvre les maladies en préhistoire."

Dr. Braemer, Professeur à l'université de Strasbourg. "Histoire de la botanique médicale en Alsace du moyen-âge à nos jours."

Dr. Bugiel, Paris. "Les trois médecins, héros d'un conte des *Gesta Romanorum*."

Dr. Henri Coppew, Bruxelles. "Un œil d'ivoire ancien avec erreur anatomique."

Dr. De Mets, Anvers. "Les inscriptions funéraires médicales à Anvers."

Docteresse Derscheid-Delcourt, Bruxelles. "Contribution à l'épigraphie médicale."

Dr. Dubreuil-Chambardel, Professeur à l'école de médecine de Tours (délégué de l'école de médecine de Tours). "De l'emploi des mots 'physicus et medicus' au moyen-âge dans les professions médicales."

M. Favier, directeur de la bibliothèque municipale de Nancy. "Bibliographie des œuvres médicales qui ont pris naissance en Lorraine."

M. Fialon, pharmacien honoraire à Rueil. "L'Histoire de la police des mœurs."

M. Fosseyeux, Docteur es-Lettres, chef de

service à l'assistance publique de Paris. "Contribution à l'histoire de la Salpêtrière."

Dr. Frederik Grau, secrétaire général à délégué de Société d'Histoire de la Médecine de Christiania. "Histoire de la médecine dans l'antiquité scandinave."

Dr. Giordano de Venise, délégué de la Société Italienne d'Histoire de la Médecine. "L'anatomie des vivants."

Dr. Paul Heger, Professeur à l'Université de Bruxelles, et Marion Spielman de Londres. "Les portraits de Vésale."

Dr. Jeanselme, Professeur à la faculté de médecine de Paris, président de la Société Française d'Histoire de la Médecine. "Histoire de l'assistance publique à Byzance."

Abbe Jonnært, Bruges. "Contribution à l'épigraphie médicale."

Dr. Frans Meeus, directeur de l'Asile des aliénés, à Morsel. "Historique de l'œuvre de Gheel, de 1180 à nos jours."

M. Moulé, chef de secteur honoraire au service vétérinaire sanitaire de Paris. "Étude sur la zoothérapie de Dioscorides ou thérapeutique animale."

Dr. Lucien Nass, rédacteur en chef du "Correspondant Médical." "La cure radicale du diabète d'après Avicenne."

Dr. Tretrop, président de la société belge d'otorhino-laryngologie. "Les traitements désuets en otorhino-laryngologie."

Dr. Tricot-Royer, président du Cercle Médical d'Anvers et Faubourgs. "Essai sur l'iconographie médicale dans les musées, églises et établissements publics à Anvers." "Contribution à l'épigraphie médicale."

Dr. Van den Briel, secrétaire général du Cercle Médical d'Anvers. "Histoire du glau come."

Dr. Van den Qildenberg, professeur à l'université de Louvain. "Essai sur l'histoire de la laryngologie."

Dr. Ernest Wichersheimer, Directeur de la bibliothèque de Strasbourg. "Projet d'un répertoire bibliographique pour servir à l'histoire de la médecine en occident pendant le moyen-âge."

THE FRENCH DRAMA AND MEDICAL TOPICS

In a previous issue of the ANNALS OF MEDICAL HISTORY,¹ we published a review of Guitry's play "Pasteur," commenting on its great success in spite of the absence of a love theme, and its somewhat didactic nature. Another play of a pseudo-scientific character which has enjoyed great popularity is "La Nouvelle Idole," by François de Curel, first published in the *Revue de Paris* in 1895, subsequently played for the first time at the Theatre Antoine in 1899, and later at the Comedie Française in 1914. Since the war it has been reproduced with continued success at the latter and in many other French theatres.

The story contains an amorous intrigue which is of rather slight interest compared to the scientific basis of the plot. Albert Donnat, a distinguished French physician has been for years conducting a series of experiments on the inoculation for cancer. He is accused of having utilized the patients in his hospital service for experimental purposes and legal proceedings have been instituted against him by the public authorities. In the first scene the sister of Madame Donnat informs the latter that the police will soon arrive at her house to seize her husband's papers. Madame Donnat gives vent to her long pent-up feelings regarding her husband. She recalls the fact that though to the world their married life has appeared happy yet she has suffered because of his absorption in his scientific researches. She complains that she has been neglected but that she has put up with it because she had always imagined that all his labors had been directed to the alleviation of the suffering of others, but now she recognized that all this apparently philanthropic zeal was simply ambition on his part to attain scientific celebrity and that in the pursuit of this ambition he sacrificed the lives of the

poor patients committed to his care. She horrifies her sister by announcing that she regards this revelation of her husband's acts as a deliverance from her bondage, that henceforth she is free to act as she pleases, finally acknowledging that she loves Maurice Cormier, a young psychologist who has been collaborating with her husband in his researches. The sister very aptly points out that this is jumping from the frying pan into the fire, and asks her whether she has not yet had enough of scientific men, to which Madame Donnat replies that being a psychologist he would recognize her mental processes and would never allow her to undergo the agonies which she suffered without her husband's having the slightest conception of them. The wise sister says the psychologist would merely study her mind and apply some Greek name to her sufferings. The conversation is interrupted by the announcement of a young woman, Antoinette, a patient of Dr. Donnat's who had been under his care for tuberculosis, upon whom he is supposed to have wrought a wonderful cure, and who has come to report to him. She is filled with gratitude. The sister leaves, and Dr. Donnat in the presence of his wife proceeds to examine the chest of Antoinette. He finds her lungs perfectly well, but that she has a cancer at the place where he had inoculated her with his cancer virus, at a time when he had considered her as doomed to die of tuberculosis. After the girl has left the room Madame Donnat accuses her husband of murder. He acknowledges his act but endeavors to exculpate himself by saying that when he inoculated the girl with cancer he had thought her beyond all hope and dying of tuberculosis.

In the argument which follows he claims that a scientist is justified in sacrificing lives for the benefit of the human race,

¹ANNALS OF MEDICAL HISTORY, ii, 83.

just as a general is justified in sacrificing soldiers to achieve a victory. His wife retorts that these grands words—science, and humanity—simply cloak his selfish ambition for scientific fame, and that the girl is a sacrifice to “the new idol,” science. She finishes by announcing her intention to free herself from her marital servitude to one whom she considers a monstrous murderer.

The second act passes in the laboratory of Maurice Cormier, the psychologist. Madame Donnat goes there to tell him that she is now free to accept the love which he has previously shown to her. His laboratory servant mistakes her for one of the subjects upon whom Cormier conducts his hypnotic experiments, and in conversation while they are awaiting the arrival of his master he reveals many details of these experiments and of the coldblooded way in which Cormier plays on the weakness of his poor neurotic victims. This somewhat chills the ardor of the lady and gives rise to some not undue apprehensions on her part. When Cormier appears he takes her visit à la scientist and coolly tells her that she has come by suggestion. She is angry and while they are engaged in an anything but amorous dialogue the servant announces the arrival of her husband who has come to see Cormier about the concealment of the records of his experiments. Madame Donnat conceals herself and listens to a conversation between the two savants in the course of

which Dr. Donnat reviews his work, describes the horror which he now feels, and reveals to her keen perception what the psychologist fails to grasp, that he has inoculated himself with cancer. When Donnat takes his departure his wife hurries from her hiding place, bids farewell to Cormier, telling him that she is going to rejoin her husband.

In the last act she implores his forgiveness, concluding with the statement that there is no longer any barrier between them. To this he replies, “No longer any barrier! You forget,” pointing to the place on his breast where he has inoculated himself. Curtain.

Although the play abounds in scientific falsities yet the attitude of mind of the two savants is well worth the study of our profession. It is unfortunate that such a presentation of what is supposed to go on in laboratories and hospitals should have wide publicity before lay audiences. In conversation with lay persons who have seen the play we have universally found that an impression of profound horror has been inspired in their minds, and that all attempts to assure them that such experiments are not carried on are met with incredulity. Such plays do infinite harm to our profession and it is hard to see wherein they can be productive of good to anyone. Nevertheless they flourish and the evil they do is widespread and lives after them.



THE PORTRAIT OF VIEUSSENS AT THE FACULTY OF MEDICINE AT MONTPELLIER

While working in the library of the Faculty of Medicine at Montpellier last spring, the writer at the same time began to make a photographic collection of the enormous number of portraits of the past members of the Faculty and other dis-



RAYMOND DE VIEUSSENS CHEVALIER
LOUIS XIV. DE L'ACADEMIE ROYALE DES
SCIENCES DE PARIS DE LA SOCIETE ROYALE DE
MEDICINE DE L'UNIVERSITE DE MONTPELLIER
LEVEE LE 16 AOUT 1713 AGE DE PRES DE
80 ANS DONNEE PAR M. DE VIEUSSENS PEINTRE

tinguished physicians who have made the ancient Faculty famous. Among them is the very fine portrait of Vieussens, the celebrated anatomist. At this point the writer would correct an oft-repeated error found in textbooks on medical history, namely, that Vieussens was a professor of anatomy. This is not the case, because, had he been, the portrait would have represented him in the black and scarlet gown of the professor

with a scarlet and black bonnet or cap. Permit me, in a few words, to outline his life.

It has been stated that Raymond Vieussens was born in the year 1641, at the village of Rouergue; however, since from the portrait it will be seen that he died at about the age of eighty years, on August 16, 1713, it is evident he must have seen the light of day in the year of 1633 or 1634.

After completing his preliminary studies in his native town, Vieussens came to Montpellier and received his degree of doctor of medicine in due time. In 1671 he was appointed physician to the Saint Eloy Hospital in that city and he seized the opportunity thus offered him to carry out anatomical research work, which resulted, after ten years' labor, in the publication of his immortal work: *Neurologia universalis, hoc est, omnium humani corporis nervorum simul ac cerebri, medullæque spinalis descriptio anatomica*, the first edition of which was published at Lyons in 1685.

Vieussens' reputation reached the court and after the death of Dubelloi, physician to Mademoiselle de Montpensier, this princess requested the Montpellier physician to fulfil the functions of her late medical adviser, a position that he gladly accepted and retained until the demise of his illustrious client.

After this event Vieussens retraced his steps to Montpellier and once more took up his anatomical studies which resulted in his famous writings on the heart and blood vessels, as well as those relating to the structure of the ear.

CHARLES GREENE CUMSTON.

THE DEACON OF ROUS

The accompanying cut entitled "The Deacon of Rous" (Den Deken Rouse) is by Peter Brueghel, the Elder, a distinguished engraver and painter of Flanders. It represents the interior of a doctor's office where operations for removing "stones" from the head are going on. In the sixteenth century and later, a person who was a little queer was said to have "stones in his head" just as we say he is "nutty."

somewhat and are apparently not in as good condition as the one represented here.

The engraving now in Amsterdam was reproduced by Dr. Henry Meigs in the *Iconographie de la Salpêtrière*, 1895. A painting of the same scene was reproduced by Meigs in the same journal in 1899. Dr. Meigs gives an interesting account of the *pierres de tête* endemic of those early days. The Leyden copy has the words "Den



The Deacon of Rous (Den Deken Rouse).

Probably pains and headaches were attributed to the same cause. At any rate, *pierres de tête* opened up a fair field for the charlatans, who apparently made incisions in the scalp and then dropped the supposed stone into the patient's lap or a neighboring bucket. Very likely wens were also removed as "stones."

This particular engraving has a special interest, because it is one, and the best one, of the three copies of this engraving now extant. Of the other two, one is in Amsterdam and the other in Leyden. (See catalogue of the engravings of Peter Brueghel L'Ancien by Rene Van Bastelaer.) The other two engravings are cut down

Deken Rouse in Vlaedire" on the hem of the robe of the operator at the left of the picture, but these words were written in and do not belong to the picture. My print Measures 0.405 by 0.2825.

Peter Brueghel was born in Flanders in about the year 1530, and was the son of a peasant. He was instructed in painting by Peter Cock and became a member of the Guild at Antwerp in 1551. He traveled in France and Italy, lived for a time in Antwerp and then in Brussels, where he died in 1569.

Brueghel's paintings were of a very high order. The best ones represent village feasts and merry makings, and he was called "the

droll" on account of their humour and pleasantry.

He is said to have etched a few plates himself, but most of the etchings which go by his name, are after drawings which he made. These Brueghel etchings are often quaint and interesting, and present in a rather exaggerated way and even with some

buffonery the customs and manners of the day. The etchings after Brueghel are not rare and probably some of them are not genuine. The particular etching which I present, however, is as stated one of three known copies and apparently is the best of the three.

CHARLES L. DANA.

FROM THE LITERATURE

Apropos of the one hundredth anniversary of Laënnec's discovery of mediate auscultation, Dr. Le Roy Crummer of Omaha published in the *Nebraska State Medical Journal* for November, 1919, a most interesting account of his discovery, with a bibliography, a portrait of Laënnec, and facsimile of the title pages of the first French and American editions of his epoch-making book.

A most interesting contribution to the history of the study of intestinal parasites is made in a paper by Clifford Dobell, F. R. S., published in the *Proceedings of the Section of the History of Medicine of the Royal Society*, 1920, Volume XIII, Number 5, in which he narrates Leeuwenhoek's discovery of parasitic protozoa during a microscopic examination of his own fæces, in 1681. The organisms which he saw and described have been identified by Dobell as *Giardia intestinalis* or *Lamblia*. This is also almost certainly the first account of a microscopic examination of the fæces. As Dobell states the discovery of *Giardia intestinalis* in the stools has generally been ascribed to Lambl, but he proves conclusively in this most scholarly article that Leeuwenhoek of Holland discovered these parasites 178 years before the Austrian Lambl described them.

In the *Proceedings of the Section of the History of Medicine of the Royal Society*, 1920, Volume xiii, Number 6, there is a lively account of a Scottish medical man of the fourteenth century, by Archibald Leitch. This ancient medical worthy was named Farquhar, and was physician to King Robert II. That monarch gave him a grant of a number of islands on the Scottish coast. The article is accompanied by a facsimile of the deed of gift.

In the same number is published a paper by C. F. Sonntag on the "History of Baths and Bathing in Britain before the Norman Conquest," covering the entire subject in a most interesting way. Dr. Sonntag gives in a table the location and the nature of the remains of all the known British, Roman, and Saxon bathing places. He also reproduces some plans illustrating their construction.

Dr. A. F. Jonas, of Omaha, contributes to the *Nebraska State Medical Journal*, November 1920, a short article on "Dupuytren and Some of His Contemporaries," containing some interesting remarks on some of the surgeons who flourished in this brilliant epoch in the history of French surgery.



CORRESPONDENCE

HENRY BENCE JONES AND SIR BENJAMIN BRODIE. In his interesting appreciation of Henry Bence Jones in Volume II, Number 3, of the *ANNALS OF MEDICAL HISTORY*, Dr. Jacob Rosenbloom refers to a copy of the "Autobiography of Sir Benjamin Brodie" in his possession which contains an autographed inscription reproduced in facsimile in his article. This inscription reads: "Dr. Bence Jones from B.C. Brodie with his kind regards. Oxford, April 1865."

The author says, "Jones was also a friend of Benjamin C. Brodie, as is shown by the accompanying reproduction of an autograph of the late Sir Benjamin C. Brodie inscribed in his autobiography which is in my possession." That Bence Jones was acquainted with Sir Benjamin Brodie, the surgeon and writer of the autobiography, is almost certain, as Dr. Rosenbloom says; but I think that the writer of the above inscription was not the surgeon, but his elder son and successor to the baronetcy. Dr. Rosenbloom tells us that Bence Jones came to St. George's Hospital on leaving Cambridge. This would probably be soon after he had graduated as B.A. in 1836, four years before Sir Benjamin Collins Brodie resigned the office of surgeon to St. George's Hospital. Brodie would probably have attracted such a man as Bence Jones, not only because of his fame as a surgeon, but because of his interest in chemistry. Brodie paid more attention to chemistry than was commonly done by surgeons at that time.

Brodie died October 1861, three and a half years before the date of the inscription in the book now owned by Dr. Rosenbloom. His elder son, also named Benjamin Collins Brodie, became the second baronet at his

father's death. He was a very distinguished chemist, and so must have had much in common with Bence Jones. Like the latter, he studied chemistry with Liebig at Giessen, though probably at a later date, because he was working in Liebig's laboratory at Giessen in 1845 (at a time when Liebig himself was on a visit to London, where he dined with his pupil's parents). Dr. Rosenbloom tells us that Bence Jones was at Giessen in 1841.

Sir Benjamin Brodie, the second, was not a medical man, but devoted his life to chemistry. He made, I believe, many contributions to that science. At the time when the inscription was written in the book now in Dr. Rosenbloom's possession he was Waynflete Professor of Chemistry at Oxford. I think it must have been he that gave the copy of his father's autobiography to Bence Jones. Most of the facts I have mentioned in this note will be found either in the collected edition of the works of (the first) Sir Benjamin Brodie, edited by Charles Hawkins and published in London in three volumes in 1865, or in the short biography of him by the late Timothy Holmes, published in the "Masters of Medicine" series, London, 1898. It is interesting to compare the facsimile reproduced in Dr. Rosenbloom's recent article with specimens of the first Sir Benjamin Brodie's handwriting reproduced in the two books just mentioned. Though in some respects similar, as might well be the case in the calligraphy of father and son, there seems to me to be little doubt but that they are specimens of the handwriting of two different people.

A. L. MORETON, M.S., F.R.C.S.
England.



BOOK REVIEWS

THE PROCEEDINGS OF THE CHARAKA CLUB.
VOLUME V. New York: Paul B. Hoeber, 1919.
8vo, Boards, 101 pages, 17 Illus., \$4.00.

The fifth volume of essays read before the Charaka Club contains a number of interesting dissertations upon the several subjects presented. We look upon the efforts of the Charakians as a very laudable work. In this dollar age it is refreshing to know that such a distinguished group of scientists are working to perpetuate the historical side of the physician's art. It is a pity that the Club's essays are not more generally known, particularly among the medical student classes. They would inculcate a reverence for the antiquity of medicine and foster the germ of pride in the lineage of their selected calling. A family prides itself upon its genealogy but how many of us are there in the medical profession who know the ancestry of the art of healing? How many of us are there who appreciate the hard road that medical art has had to traverse to reach her present plane?

The volume would further enlighten the lay mind as to why the code of ethics should be revered among physicians. History takes us back among those great minds that have gone before. It unfolds their thoughts and works and if the student be of proper ilk it will do much towards putting him in the proper groove of conduct. This we feel can best be accomplished by such work as the Charaka Club is doing.

In the "Military Surgeon in the Middle Ages," by Lewis Stephen Pilcher, M.D., Dr. Pilcher reviews most interestingly the history of the great military surgeons of the Middle Ages. He traces the origin of the military surgeon and shows the part he

played in the conduct of the army. In the times depicted the surgeon was looked upon as excess baggage and in a sense an encumbrance. He states that it is only within recent years that his importance has been appreciated. We do not think his importance is as yet fully appreciated. He relates the remark of Charles V to Paré at the siege of Metz which was to the effect that the common soldiers were expendable and it mattered little how many were lost through disease. We were told that human life was expendable in the last war. This everyone knows must be a congener of battle strife, but the word often grated upon us.

Thanks to the free cities of Bruges, Ypres, Ghent, Florence and Venice, since they were the first to attempt provision for the diseased and wounded men of battle. The men of Ypres had with them in 1325 Jehan Yperman as surgeon. Hugo Von Lucca was in a similar capacity retained by the town of Bologna. The Genoese galleys furnished to Philip of Valois in 1337, were also attended by doctors. Dr. Pilcher relates that shortly after these came that eminently famous battle surgeon Paré whose efforts did so much for the French. Paré was not at first accorded rank nor regular payment. He was a mere follower paid by casks of wine, horses, ducats, and jewelry. Paré relates there was no regular army medical service at this time. The commanders furnished their own personal medical attendants. All throughout the essay one is impressed with the great disregard the monarch or commander had for the welfare of his wounded men. The utter selfishness of the leaders and the wanton waste of man power through disease and lack of proper sanita-

tion. The soldier of the Middle Ages was not apparently accorded as much care as in modern times is extended to the army mule.

Dr. Pilcher draws a very vivid picture of the types of wounds to which the foot soldier was subjected. The article is illustrated by several cuts of the "wound man" a familiar figure in the works of the time of which he speaks.

The work of the knightly order of St. John founded by the Crusaders for the express care of the wounded is described by Dr. Pilcher and he proves by historic reference that the English were the first people to make a systematic effort to care for the wounded. Surgeon General Thomas Morstede and Chief Physician Nicholas Cornet accompanied Henry V into France and were given a rank.

In his article on "War Neuroses in the Civil War," Dr. Frederick Peterson proves beyond doubt that so-called shell shock was a very potent problem during the Civil War. He states it was not known by the term "shell shock" but classed under the general heading of "neurosis." He quotes from a paper by Dr. George Burr of Binghamton, N.Y., published in the *New York Medical Journal*.¹ It is interesting to note that it was accepted with doubt by the profession. There are those who contend to-day that shell shock is a sort of myth but they have not been close to high explosive bursts and have conjured their opinions from observations in the rear. The article refers to the classic little book by Drs. Mitchell, Keen, and Morehouse, which every military surgeon will do well to read.

In "Military and Civil Surgery Among the Ancient Romans, with Remarks on their Surgical Instruments," Dr. Charles L. Dana describes most entertainingly a fascinating topic, and the article is rife with historic information relating to the management of the sick and wounded during the Roman periods of conquest. It is

¹ *N. York, M. J.*, 1865, i, 428.

well illustrated by cuts of ancient surgical instruments. Here again one is impressed by the apparent lack of care given to the sick and injured of an army. The author presents evidence to show that in those days the poor unfortunate wounded man was left to his own devices and in many instances either slaughtered by the victor or given euthanasia by one of his own clan. He writes of a number of Roman campaigns and tells how the troops were ravaged by different kinds of plague, and speaks of the barbarously practical idea among the Romans that a man minus a limb was of no further use to the state as a soldier and hence was neglected. Rome had no provision for hospital care of the sick, poor and afflicted. The soldier, however, was provided with a first aid packet.

Dr. George L. Walton contributes a valuable account of silphium, the plant that made Cyrene famous. It is illustrated with cuts of coins and vases bearing pictures of the plant and testifying to its importance as an article of commerce in that ancient city. The plant was used in medicine as a diuretic and cathartic, and was also largely employed as a condiment.

Dr. Fielding H. Garrison's erudite article "The Gods of the Underworld in Ancient Medicine" continues a subject upon which its writer has already thrown much light. The charm with which Dr. Garrison weaves his revelations of the medicine and theology of the ancient world as revealed in the literature of its great writers will stimulate the reader to reread some of the classics and will give him a new interpretation of some passages in them, especially *Æschylus*.

Dr. Gerster translates from Enguerrand de Monstrelet an account of a students' riot in the fifteenth century at the University of Paris, and of the punishment meted out to those who had offended, with an account of the execution of two students for theft and the reparation obtained by the University for their execution.

Dr. Pearce Bailey has enlivened the volume by a short tragedy "The Confession," a gruesome but very dramatic exposition of an episode in modern Italy, which we think well deserves dramatic presentation.

Dr. Walton's poem "Erasistratus Forbear" is a humorous skit, somewhat reminiscent in style of his deceased colleague and townsman, the lamented Holmes.

Dr. Smith Ely Jelliffe has an interesting paper on "Magic, Above and Below," dealing with Chesterton's play "Magic." Dr. Gerster has an article on the Latin translation of Aristophanes which he considers the best Latin version of that author.

Dr. Pilcher describes and analyzes the 1639 edition of Harvey's "De Motu Cordis," with the "Refutation" by Parisanus and Primrose, which he considers should not be classed among the editions proper of the "De Motu Cordis" as he thinks that the book was a publisher's venture and not an author's edition, though published in the latter's lifetime. The volume concludes with a most interesting statistical study by Dr. Dana of the number of physicians who could be justly reckoned among the world's eminent men.

The volumes of the Charaka Club are always hailed with joy by those interested in the historical or literary aspects of medicine. This volume fully equals in interest and worth its predecessors. It is a monument to the zeal and learning of the contributors and an honour to the Club whose imprint it bears.

THOMAS C. STELLWAGEN, JR.

PASTEUR—THE HISTORY OF A MIND. By Emile Duclaux, Late member of the Institute of France, Professor at the Sorbonne and Director of the Pasteur Institute. Translated and edited by Erwin F. Smith and Florence Hedges, Pathologists of the U. S. Department of Agriculture. 8vo, 363 pages, illus. Philadelphia: W. B. Saunders Company, 1920.

Probably the biography of no scientific man has ever been so widely read nor so

greatly admired by its readers as that of Pasteur by Vallery-Radot. It has achieved as great popularity in the admirable English translation by Mrs. Devonshire as it attained in the original French, and, indeed, except for those familiar with French technical scientific terms, its perusal in that language would have rendered it difficult for many to have appreciated it. Pasteur died on September 25, 1895, and the firm hold which he held at the time of his death in the hearts and minds, not only of those in the scientific world but also of the lay people, has increased rather than diminished in the years that have elapsed. One of the dramatic successes of 1919 on the Parisian stage was Guitry's drama, "Pasteur," the sole interest of which lay in its portrayal of the great man's character, there being no intensely dramatic incident nor any of the episodes of tragedy or love which ordinarily animate theatrical representations. In 1896, two years after Pasteur's death, one of his pupils and collaborators Emile Duclaux, published "Pasteur: Histoire d'un Esprit." This is the work which is now first translated and rendered accessible to English readers. It is very difficult to obtain even in French and a great debt of gratitude is due the translators for the admirable manner in which they have presented so invaluable a work to their readers. It is not, strictly speaking, a biography, nor is it a critique. It is a somewhat unique attempt to depict the scientific progress of a mind as it proceeded to build up a new science, entirely overthrowing in its evolution of ideas the old misconceptions concerning the many topics with which in turn it dealt. Beginning with Pasteur's researches in crystallography, Duclaux depicts the manner in which Pasteur dealt one after another with the problems of fermentation, silkworm disease, anthrax, rabies, etc., gradually evolving the basis of all our modern conceptions of vaccination, immunity, antiseptics and asepsis. As the translators re-

mark, "It is a contribution to the biological history of a swiftly changing time." Duclaux was one of the group of pupils who did so much to aid Pasteur in his Herculean task. Like Chamberland, Roux, and the rest of the laboratory staff, he worshipped Pasteur. Although their master ran counter to time-honored scientific prejudices and ideas, and contradicted the views of the greatest of his contemporaries, such was their confidence in the infallibility of his statements and the unerring nature of his experiments that nothing could shake their faith, and hence, as this book tells, they toiled, and labored tirelessly to help him in the completion of the many gigantic tasks that he succeeded in accomplishing in his lifetime. Duclaux's book is an invaluable companion to the biography by Vallery-Radot. Pasteur's existence was so intrinsically his laboratory career that this detailed account of his labors has the vital interest which attaches to the obviously true recital of the intimate personal life of any truly great individual. The book contains a number of interesting and some unusual portraits of Pasteur and also appropriate cuts of some of the organisms he studied and the appliances he used.

FRANCIS R. PACKARD.

DR. JOHN FOTHERGILL AND HIS FRIENDS; CHAPTERS IN EIGHTEENTH CENTURY LIFE. By R. Hingston Fox, M.D., London; Macmillan and Company, Ltd., 1919; 8 vo., cloth, 434 pages, 13 plates, \$7.50.

This most delightful biography of one of the most distinguished English physicians of the eighteenth century possesses an especial interest for Americans because of the close relations maintained by Dr. Fothergill throughout his life with American affairs and personages, and of the influential part he took in the development of the earliest medical institutions in the colonies. John Fothergill, his father, made no less than three different journeys to America, a very unusual thing in his time, and a brother Samuel, also traveled in the Colonies, both of them on religious missions to the

Friends. The Fothergills had been Quakers from the time of George Fox, the grandfather of Dr. John Fothergill who suffered imprisonment for his religious opinions.

John Fothergill was born in 1712 on the farm in Yorkshire which belonged to his father. At the age of sixteen he was apprenticed to an apothecary at Bradford with whom he remained for six years, when he became a student of medicine at Edinburgh, probably because as a dissenter the medical schools at Oxford and Cambridge were closed to him. Although the medical school at Edinburgh had only been in existence ten years it had a strong faculty, the best known member being Alexander Monro, *primus*, the first of the three celebrated teachers of anatomy of that name who held that chair in succession in Edinburgh for a period extending over a century and a quarter. After getting his degree he went to London and spent several years in study at St. Thomas's Hospital, after which he made a continental tour, and on his return began practice in London in 1740.

He early took a prominent part in the affairs of the Quakers in London and his connections with them undoubtedly favored the rapidity with which he soon acquired a large practice; but there is no doubt that his success was assured by his personality and professional qualifications. Throughout his life he was a hard worker, very conscientious and thorough. He knew how to use the vast experience he got from his large practice and his hospital work, and when, in 1747-48, a terrible epidemic of what was probably scarlet fever swept over London he achieved great success by the treatment he pursued, and secured wider fame by a book he published entitled "An Account of the Sorethroat Attended by Ulcers," which went through many editions and brought him much consultation work. All his life he conformed strictly to the views of the Quakers, wearing plain clothes, using the so-called "Friendly speech," and not raising

his hat from mere usage of civility. He never married. His sister Ann lived in his house and kept it for him from 1754 until his death. They maintained a hospitable establishment and among many others their kindly roof gave friendly shelter to many young Americans.

Although Fothergill wrote no large work on medicine he read many papers before medical societies which were published. Most of these contributions deal with therapeutics or are clinical accounts of rare cases. The presentation of these subjects is marked by good judgment and common sense more than by any great originality. He also aided both by advice and financial contributions in the publication of a number of important works such as Mueller's "Illustrations of the Sexual System of Linnaeus," Edward's "Birds of Great Britain," and Drury's "Entomology." He performed the same services for the "Works of William Penn," and Barclay's "Apology." After a poor school-teacher, named Anthony Purver, had made a translation of the Bible, in which he did away with what he considered the obsolete terms of the authorized version by phrasing his wording in what was the modern English of his time, Fothergill bought the copyright and published the book at his own expense.

Dr. Fox devotes several chapters to Fothergill's professional associations in London and details the struggle which he made with other licentiates of the College of Physicians of London to obtain admission to the rank of fellow in that body, an interesting chapter in medical politics. Fothergill took the deepest interest in the natural sciences, especially botany, establishing a very large and extremely valuable botanical garden at Upton. This interest cemented a friendship between him and Peter Collinson, the famous English botanist. Collinson was a diligent collector of foreign plants, not as mere curiosities but as new varieties of plant life that he might cultivate them in England.

With this purpose in view he had become the correspondent of John Bartram, the famous botanist of Philadelphia, with whom he carried on an epistolary friendship for thirty-five years, and for whom he secured the appointment of botanist for the king in North America, and got orders from a number of English noblemen such as Lord Petre, for plants and seeds, thus insuring Bartram financial support in his labors and explorations. Collinson placed Fothergill in communication with Bartram and the latter supplied him with many valuable acquisitions for his botanic garden. The friendship and correspondence of this group of lovers of nature in the eighteenth century is a most delightful picture—all mutually helpful and striving to help their fellowmen by adding to the resources of their native soil, while at the same time enjoying so keenly the pleasures of nature study and appreciating to the fullest extent the joys of the collector.

Dr. Fothergill's most important American friendship was that with Benjamin Franklin, which again was due to the intermediation of Collinson. The latter acted for many years as the London agent of the Library Company of Philadelphia, the first public library in the Colonies, which had been founded by Franklin. Collinson worked hard in its interest entirely without pecuniary reward, often giving them donations of books, and writing reports to the directors of any new scientific discoveries or matters of interest in the learned world. In 1745 he sent them an account of some experiments in electricity with an electrical apparatus, which interested Franklin so much that he not only repeated the experiments but considerably enlarged their scope, communicating the results to Collinson. The latter showed them to Fothergill, and he in turn published them with a preface from his pen. He also presented further communications from Franklin including his account of

his kite experiment to the Royal Society, with the result that the latter in 1753 awarded Franklin the Copley medal, and in 1756 elected him a fellow.

After having maintained a correspondence with one another for six years, Franklin and Fothergill first met in 1757, when Franklin came to London in an effort to adjust the disputes between the Proprietaries and the Colonists of Pennsylvania. The two men though very different in character had certain traits and interests in common. The rigid Quaker with his uncompromising religious views was animated by a broad philanthropy and a love of liberty which at once established a bond between him and the patriotic philosopher and man of the world. When Franklin returned to America they maintained a lively correspondence, this time chiefly on political rather than scientific affairs.

In 1764 Franklin returned to London and remained there for ten years as agent for Pennsylvania and some of the other Colonies. During this period he was in close association with Fothergill, who was unflagging in his efforts to soften the attitude of the British Government and bring about a reconciliation.

Dr. Fox prints in an appendix a series of documents drawn up by Franklin, Fothergill, and the latter's friend, David Barclay, in 1774, in which proposals looking to a satisfactory settlement were arranged in a manner which was calculated to satisfy both parties. But things had gone too far; the break came; Franklin left London to go over to Paris there to continue his invaluable labors for his countrymen with more practical results. Franklin and Fothergill never met again although they continued to correspond in spite of the difficulties occasioned by the war.

Fothergill rendered the most direct service to American medicine through his kindness to the young Americans who came across the Atlantic to study; many of

whom bore letters of introduction to him which never failed to secure his friendly attention. To Dr. William Shippen, Jr., he gave a series of pictures and anatomical casts to aid him in teaching the medical classes he proposed to organize on his return to America. These are still preserved at the Pennsylvania Hospital in Philadelphia. John Morgan was aided very greatly in his project of founding a medical school in Philadelphia by Fothergill's influence and advice. Benjamin Rush owed his appointment as professor of chemistry in this school chiefly to Fothergill's influence with the board of trustees. He contributed considerable sums of money to the Pennsylvania Hospital and donated many books to its library at a time when it was the only medical library in the Colonies.

Fothergill's interest and influence in the affairs of Pennsylvania was very great. He corresponded regularly with people like the Pembertons and Logans, and William Logan sent his three sons to England to complete their educations under Fothergill's supervision. Benjamin Waterhouse, the first professor of medicine in the Harvard medical school, was a cousin of Fothergill. He came to England and was one of Fothergill's household while studying medicine in London and Edinburgh. Fothergill was very much attached to him and wrote to Franklin that if the state of Massachusetts should ever establish a medical school he would be the man to fill the chair of professor of medicine, a hint that was duly complied with.

Fothergill was a philanthropist. He gave of his wealth in many directions in the quiet, unostentatious manner which characterized all the actions of his life. He also aided in many reforms. Thus he lent substantial assistance to John Howard in his efforts to correct the abuses of the prison system of England. He was a leader in the movement for the abolition of slavery. Municipal hygiene was a subject to which

he devoted much attention, advocating clean streets, various schemes for improving housing conditions, and the establishment of public baths.

Fothergill's long and useful life closed in 1780. Although not one of the great originators or discoverers in medicine, he was one of those men whose lives have shone forth conspicuously in their generation as public benefactors. His life was a beautiful example of that of "the good physician."

FRANCIS R. PACKARD.

GEORGE MILLER STERNBERG. A Biography by his wife, Martha L. Sternberg. Chicago: American Medical Association, 1920.

It is eminently fitting that the record of the life and achievements of General Sternberg, a man who played a large part in his time, should be preserved in a permanent form. It is evident that Mrs. Sternberg entered keenly and sympathetically into her husband's interests and work, and she has given a most interesting account of his life spent in many different places. One feels much sympathy for the inconvenience due to the nomadic life of the army officer in the days when the facilities of travel were not of the easiest.

General Sternberg accomplished much and his life is a record of constant activity. He must have had a tremendous power of concentration and untiring energy to persevere in his many lines of activity under conditions which often must have been discouraging. For several reasons his name deserves to be kept in memory. In bacteriology he was the pioneer on this continent and to-day probably few of the younger workers in that subject know how much he contributed to its advancement. The early workers in a new subject have most of the difficulties and those who come after reap the benefits. This applies particularly to the early work and researches in the technical side of a subject. Somewhat the same

comment might be made regarding his work on yellow fever. We easily forget the steps which have led to any important discovery. The particular contribution made by General Sternberg in the study of yellow fever was to clear the ground in proving that various bacilli claimed as causal were not so and that the etiological agent was not bacterial. This may seem an easy task in view of our present knowledge but represented a vast amount of work when the whole question was most obscure. This done, the way was pointed to other possibilities and in the direction of the solution of the method of transmission he took an important part.

His work in sanitation and in the study of the problems of disinfection was also important. He did much to encourage scientific work in the Medical Service of the Army and took a large part in the establishment of the Army Medical School. We all realize what an important advance this represented. His discovery of the pneumococcus, although not recognizing its importance, the demonstration of the tubercle bacillus for the first time on this continent, the demonstration that malarial fever is not due to a bacillus, the first demonstration of the malarial parasite on this continent, and early work on the typhoid bacillus are other achievements worthy of note.

This story of the career of a medical officer who entered the Army in 1861 and retired from it in 1902 is one of unwearied effort, of much accomplished in many lines of work and of a steady devotion to duty and to the wider field of the public good. Few have made so many solid contributions to medicine and it is a cause of satisfaction that the story of his life and work has been given to us by Mrs. Sternberg. She has done her task well and we can realize that it has been a labor of love.

THOMAS McCRAE.

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MONTAIGNE AND MEDICINE

By J. S. TAYLOR, M.D.

WASHINGTON, D. C.

MONTAIGNE'S CLAIM TO THE NOTICE OF THE PROFESSION



NO MATTER how soon the adult reader is introduced to Montaigne he will always regret not having come earlier under the spell of this rare spirit.

Of all the philosophers

of the past not one makes as strong an appeal to the physician as Montaigne. He was for years a great sufferer from maladies which the profession could not alleviate and so we are, in a sense, his debtors. Like the true physician he held everything *sub judice*, unable to declare that the last word had been said, unwilling to speak with finality on the thousand and one things which he observed and studied. In analyzing human thought and conduct he was a model for the physician who studies pathology and symptoms, and many are the analogies between his situation, his mode of thought, his character and temperament and those of the profession. He recorded truthfully the phenomena that came within the range of his faculties, fearless of the deductions others might make

from them and withal modest in the expression of his own. Right or wrong he wrote "in good faith."

Like the medical writer handicapped by an ever-changing vehicle of expression, an ever-altering nomenclature and phraseology liable to leave him stranded in the ranks of the obsolete, Montaigne wrote while the French language was in transition, an unstable medium; wrote with a brightness, a lightness of touch, an insouciance without precedent or imitation, he and Rabelais being the last to fashion its plastic shape before the stabilizing influence of the Academy. But his homely, graphic phrases, his vivid touch, will always be in fashion like the language of the King James version of the Bible. And so, in medicine, we shall always know what our predecessors meant by a clyster whether it be the passing fashion to say *énema* or *enéma*. Montaigne's style was simple in so far that he was guilty of no affectation, no striving for effect. "May I use no words but those which are current in the Paris markets," he explained; and medical writers who cannot call a spade

a spade, who prefer "ecchymosis of the subpalpebral arcular tissue" to "a black eye," should take a leaf from his notebook.

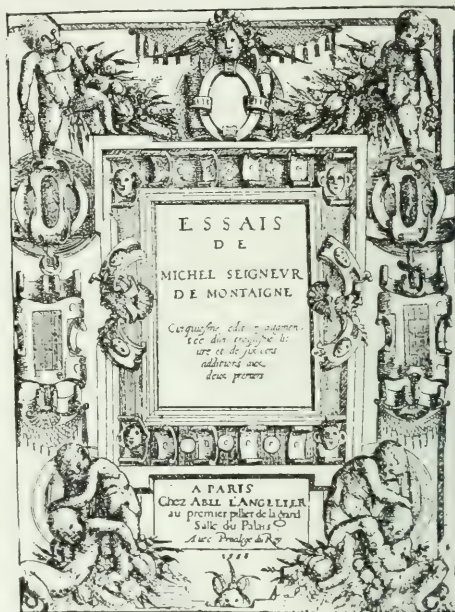
Montaigne in his "Essays" pretends to no epoch-making discovery in the realms of human thought and claims to enunciate nothing novel or startling. His study was mankind, with himself as the readiest subject of practical dissection. His comments are like the clinical notes of the general practitioner and if his writings were to become inaccessible to the modern reader we would still be under obligations to him for all the delightful things that have been written about him and them. Many are the hypotheses and speculations he builds on the data acquired. A further analogy between Montaigne and the general run of physicians is that he had to take many of his authorities at secondhand. He read his favorite Plutarch in Amyot's translation for he knew no Greek. Just as we must accept the dicta of technical investigators and sometimes be compelled to hear them confuted, Montaigne was at least once openly confronted with Amyot's mistakes, and he still suffers for the inaccuracy of those he quoted.

Like the average doctor, Montaigne was a poor business man and but for an efficient, capable and faithful wife his estate would have gone to pot. He wrote a bad hand, was extremely forgetful and strangely impractical in many of the ordinary affairs of life. A few passages which follow give his own estimate of his shortcomings.

There is not a man living, whom it would so little become to speak of memory as myself, for I have none at all; and do not think that the world has again another so treacherous as mine. (Of Liars.)

Agility and address I never had and yet am the son of a very active and spritely father, and that continued to be so to an extreme old age. I have seldom known any man of his condition, his equal in all bodily exercises: as I have seldom met with any who have not excelled me, except in running, at which I

was pretty good. In music or singing, for which I have a very unfit voice, or to play on any sort of instrument, they could never teach me anything. . . . My hands are so clumsy, that I cannot so much as write so as to read it myself, so that I had rather do what I have scribbled over again, than to take upon me the trouble to correct it, and do not read much better than I write. I cannot handsomely fold up a letter, nor



Facsimile of the title page of Montaigne's "Essays" (Edition of 1588).

From "Montaigne, L'Homme et L'Œuvre," by P. Bourdieu, Paris, 1893.

could ever make a pen, or carve at table worth a pin, nor saddle a horse, nor carry a hawk, and fly her, nor hunt the dogs, nor lure a hawk, nor speak to a horse. In fine, my bodily qualities are very well suited to those of my soul, there is nothing spritely, only a full and firm vigor. I am patient enough of labor and pains, but it is only when I go voluntary to the work, and only so long as my own desire prompts me to it. (Of Presumption.)

My library, which is of the best sort of country libraries, is situated in a corner of my house; if anything comes into my head that I have a mind to look on or to write, lest I

should forget it in but going cross the court, I am fain to commit it to the memory of some other. If I venture in speaking to digress never so little from my subject, I am infallibly lost, which is the reason that I keep myself in discourse strictly close. I am forced to call the men that serve me either by the names of their offices, or their country; for names are very hard for me to remember. I can tell indeed that there are three syllables, that it has a harsh sound, and that it begins or ends with such a letter, but that's all; and if I should live long, I do not think but I should forget my own name, as some others have done. (Of Presumption.)

Montaigne was the apostle of nature, the champion of common sense, radical but conservative, a professed follower of the middle path yet able to rise above convention when it confined and restricted instead of protecting him. His attitude to ultimate truth was the scientific one. He was open to conviction; disinclined to hold anything incredible or impossible. Dowden says that "a fact was of value to him as a means of attaining a truth." What is more, he could follow a train of reasoning from circumstances by no means established as facts if any useful conclusion could thereby be arrived at, availing himself alike of the *a priori* and the *a posteriori* method. "Great abuse in the world is begot, or, to speak more boldly, all the abuses of the world are begot by our being taught to be afraid of professing our ignorance, and that we are bound to accept all things we are not able to refute." (Of Cripples.)

For the type of science and learning that desiccates the soul and makes complacent, conceited pedants he had no use but he was in himself an admirable exponent of the value of true culture.

His belief and unbelief were combined very much as they are in many a physician for whom a certain rationalism has been grafted by the character of his studies on a personality inclined to faith, a faith

built up rather than shattered by intimate acquaintance with much holy living and dying.

Like the physician, Montaigne lived ever with death. Not that he frequently observed the material phenomena of dissolution; but this inevitable and stupendous contingency, life's setting and background, was like the ravine on one side of a mountain road, not precluding enjoyment of the scenery but reminding one of the need to put one's feet down warily. But enough of these attempted and perhaps superficial parallelisms and analogies.

HEREDITY AND PHYSICAL CHARACTERISTICS

The purpose of this paper is to present together all the facts relating to Montaigne's physical life—his ancestry and offspring, his appearance and make-up, his marriage; to report some of the natural phenomena that interested him; to recite the story of his bodily afflictions and his struggle for health; to set forth his attitude to medicine and the grounds therefor.

Michel Eyquem de Montaigne was born on February 28, 1533, at the Château Montaigne, near the small town of Bergerac and the important city of Bordeaux, in Périgord. He made his appearance on the scene of life between eleven o'clock and noon, so he tells us, and thus was a departure from the rule since one's *début* in life's drama is commonly made at about the hour of sunrise. His father was a wealthy burgher, a wine merchant of good, middle class French stock with, perhaps, an admixture of British blood from the days of the Plantagenet ascendancy in Aquitaine. In earlier generations the family business had been fish rather than wine. His mother was Antoinette de Loupes, Lopes or Lopez, of Toulouse. She was of Jewish extraction, the family, originally of Villa Nova near Toledo, having been expelled from Spain (or Portugal). Her ancestors had been merchants or physicians. She and her parents adhered to the Huguenot

persuasion. Antoinette lived for seventy-three years after the marriage contracted with Peter Montaigne on his return from military service in Italy under Francis I. The heart he offered was whole, the body untainted by any physical impurity. Montaigne was the third child by this marriage but the eldest of those who lived to grow up.

Montaigne adored his father and honored his memory to the last. He says of him:

His behavior was grave, humble and modest; he was very solicitous of neatness and decency both in his person and clothes, whether on horseback, or afoot; he was exceeding punctual of his word; and of a conscience and religion generally tending rather towards superstition than otherwise. For a man of little stature, very strong, well proportioned, and well knit, of a pleasing countenance inclining to brown, and very adroit in all noble exercises. I have yet in the house to be seen canes pow'd full of lead, with which, they say, he exercised his arms for throwing the bar, or the stone; and shoes with leaden soles to make him after lighter for running, or leaping. Of his vaulting he has left little miracles behind him: I have seen him, when past three-score, laugh at our exercises, and throw himself in his furred gown into the saddle, make the tour of a table upon his thumbs, and scarce ever mount the stairs into his chamber without taking three or four steps at a time; and swore he was a virgin at his marriage; and yet it was after a long practice of arms beyond the mountains; of which war he has left us a paper-journal under his own hand, wherein he has given a precise account from point to point of all passages both relating to the public and to himself. And was also married at a well advanced maturity in the year 1528, the three and thirtieth year of his age, upon his way home from Italy. (Of Drunkenness.)

He himself, though not lacking in health and vigor, was no match for his father who was good at every athletic exercise, knew no illness and took no medicine until he became, late in life, the victim of stone. "I hardly ever find anyone who cannot outdo me,

save in running, in the which I used to have a mediocre success....In dancing and tennis, in wrestling, I have never been able to acquire more than a very slight and ordinary efficiency; in swimming, fencing, vaulting, and jumping, none at all." (Of Presumption.)

Montaigne's rearing was peculiar. Corporal punishment was forbidden. Teaching



Portrait of Montaigne from an engraving by Augustin de Saint-Aubin.

(From "Montaigne, L'Homme et l'Œuvre," by P. Bonneton, Paris, 1893.)

was by influence not compulsion. Everything was to be simplicity, gentleness and kindness. Anything that might jar or shock the nervous system was ruled out. He was awakened by the sound of music, his father "being of opinion, it did trouble and disturb the brains of children suddenly to wake them in the morning, and to snatch them violently and over hastily from sleep, (wherein they are much more profoundly involved than we) he only caused me to

be wakened by the sound of some musical instrument. . . . For, tho I was of a strong and healthful constitution, and of a disposition tolerably sweet and tractable; yet I was withal so heavy, idle, and indisposed that they could not rouse me from this stupidity to any exercise of recreation, nor get me out to play." (Education of Children.) He was brought up among peasants with a view to encouraging hardihood and fostering physical adaptability and was committed to teachers and companions who spoke Latin so that this might be his first, his natural language. One of his earliest tutors was a doctor of German descent "who since died a famous physician in France."

As a lad he was not overzealous in study. He says that he was rather lethargic, not so much in danger of doing wrong as of doing nothing. He was a dreamer out of touch with the practical issues of life, a disposition favored rather than corrected by a peculiar bringing up which with all its effort to be sedative and not stimulating did not prevent him from developing into a man of nerves; of a sensitive, susceptible temperament. He analyzed this condition when he said:

The very sight of another's pain does materially work upon me, and I naturally usurp the sense of a third person to share with him in his torment. A perpetual cough in another tickles my lungs and throat. I more unwillingly visit the sick I love, and am by duty interested to look after, than those I care not for, and from whom I have no expectation. I take possession of the disease I am concerned at and lay it too much to heart, and do not at all wonder that fancy should distribute fevers, and sometimes kill such as allow too much scope, and are too willing to entertain it. Simon Thomas was a great physician of his time. I remember, that happening one day at Toulouse to meet him at a rich old fellow's house, who was troubled with naughty lungs, and discoursing with his patient about the method of his cure; he told him, that one thing which would be very conducing to it, was to give me such occasion to be

pleased with his company, that I might come often to see him, by which means and by fixing his eyes upon the freshness of my complexion, and his imagination upon the sprightliness and vigour that glowed in my youth, and possessing all his senses with the flourishing age wherein I then was, his habit of body might peradventure be amended, but he forgot to say that mine at the same time might be made worse. (Force of the Imagination.)



Chereau's portrait of Montaigne.

(From "Montaigne, L'Homme et l'Œuvre," by P. Bourgeon, Paris, 1893.)

He required periods of privacy and leisure for accomplishment as well as for comfort. "For my own part, I confess, I cannot forbear starting when the rattle of a harquebuse thunders in my ears on a sudden, and in a place where I am not to expect it, which I have also observed in others, braver fellows than I." (Of Constancy.) He was never good at games or manly exercises except those of running and riding. His passion for horses is amply proved by many sympathetic references to them and though

he professed no great skill as a horseman he rode much, both when sick and well. In his travels he noted everything that he ran upon connected with equitation.

I do not willingly alight when I am once on horseback; for it is the place where, whether well, or sick, I find myself most at ease. (Of *Horses Dressed to the Menage*, etc.)

I had taken a horse that went very easy upon his pace, but was not very strong. Being upon my return home, a sudden occasion falling out to make use of this horse in a kind of service that he was not acquainted with; one of my train, a lusty proper fellow, mounted upon a strong German horse, that had a very ill mouth, but was otherwise vigorous and unsoiled, to play the Bravo, and appear a better man than his fellows, comes thundering full speed in the very track where I was, rushing like a Colossus upon the little man, and the little horse, with such a career of strength and weight, that he turned us both over and over topsy turvy, with our heels in the air! So that there lay the horse overthrown and stunned with the fall, and I ten or twelve paces from him stretched out at length, with my face all battered and broken, my sword which I had in my hand, above ten paces beyond that, and my belt broke all to pieces, without motion or sense any more than a stock. 'Twas the only swoon I was ever in till this hour in my life. (Use makes Perfectness.)

A good rider does not so much mend my seat, as an awkward attorney, or a Venetian on horseback; and a clownish way of speaking does more reform mine, than the quaintest dialect. The ridiculous and simple look of another, does always advertise and advise me; that which pricks rouses and incites much better than that which tickles. (Of the Act of Conferring.)

I had rather be a good horseman than a good logician. . . . I can keep on horseback, as much tormented with the stone as I am, without alighting or being weary, eight or ten hours together. . . . My horses perform the better, for never any horse tired under me, that was able to hold out the first day's journey: I water them at every brook I meet, and have only a care they have so much way to go before I

come to my inn, as will warm the water in their bellies. . . . I feel death always twitching me by the throat, or by the back: but I am of another temper, 'tis in all places alike to me; yet, might I have my choice, I think I should rather choose to die on horseback than in a bed, out of my own house, and far enough from my own people. . . . I should choose to pass away the greatest part of my life on horseback. (Of *Vanity*.)

As horses that are led make several bounds and curvetts, but 'tis always at the length of the collar, and they still follow him that leads them. . . . Horses for the most part neighing, and swans singing when they die. (Of *Physiognomy*.)

It was always his habit, whether he purposed to halt on the road or not, to let his horses have oats to eat in the morning at the inn before starting. "After faring seven leagues, we all arrived fasting late at night at Stertzing." He thought the Swiss gave their horses too much to eat. On leaving Parma "we changed horses at every post and for 2 posts I made them go at full gallôp so as to test the strength of my loins. I felt no ill effects or weariness therefrom." At Lyons he bought "three strong service horses, with fresh cut tails, for two hundred crowns, having purchased on the previous day of Malesieu a pacing horse for fifty crowns and another curtal nag for thirty-three." He thought it folly to bring good horses to Tuscany as the quality of hay was poor. The inhabitants unbridled and unsaddled their horses and let them drink all the water they wanted to when on the road!

As a young man he was fond of rich dress, ambitious, perhaps dissipated. The ambition never utterly died out though its nature and end changed with his growth. That he was dissipated is a possible deduction from some of those many frank statements which have to be taken with a grain of salt. "I have formerly loved cards and dice, but have long since left them off, only for this reason, that though I carry my losses as

handsomely as another, I was not well satisfied and quiet within." In the same way it may be concluded that he overtaxed and abused his health in youth. Probably in the reaction from the emotions aroused by La Boëtie's death—Montaigne was a passionate votary of friendship, and life gave him one and only one friend that satisfied every craving and developed every faculty—he deliberately sought distraction in the frivolities of his time though such

MARRIAGE

Two years after La Boëtie's death Montaigne married Françoise de La Chassaingne, a woman of good, middle class family and respectable fortune. Françoise made him a good wife, the union fully meeting the husband's requirements. We have no way of knowing how satisfactory it was to his wife. Presumably it had all the disappointments usually accruing to the helpmate of a student and scholar. Montaigne was reasonably faithful. Françoise apparently discharged her full duty as wife and mother, proving the capable business partner which the Frenchman requires and demonstrating more than the usual capacity for administration since the essayist was without knowledge or capacity for farming, business, or the direction of an estate. Françoise, in addition, played the good Samaritan and Lady Bountiful for the rural neighborhood of the château and doubtless got some pleasure out of life in this rôle and by doctoring the sick, using the same medicine—one which she did not take herself—for fifty different maladies and always obtaining wonderful results.

Montaigne had the typical Gallic idea of marriage as an institution and perhaps something more:

For if one doth not always fulfill one's duty, at least one must always love it; and one must recognize the treachery of marrying without espousing one another. . . . Marriage hath for its share, usefulness, justice, honour, and constancy—a flat pleasure but a universal one. Love is founded upon delight alone, and giveth it, truly, of a kind more poignant, more caressive, more vital. (On Some Verses of Virgil.)

A man doth not marry for himself, whatever people say; he marieth, quite as much, if not more, for his posterity and his family. The uses and interests of marriage concern our race, they reach far beyond ourselves. (Of Vanity.)

Marriage meaneth a kind of converse which easily coolth through propinquity—a converse



The house at Sarlat where Etienne de La Boëtie was born. (from "Through the French Provinces" by Ernest C. Persolto, New York, 1909.)

pursuits were essentially foreign to his nature.

I have never put myself to great pains to curb the desires by the which I have found myself beset. My virtue is a virtue, or rather an innocence, which is purely random and accidental. By lucky chance I come of a race famous for its honour, and of an excellent father. I know not whether some part of his tastes have passed into me; or whether home example, and the good teaching I had in childhood, have helped me without my being aware; or else whether I was born thus, but, anyhow, I hold most vices in abhorrence. (Of Cruelty.)

which is harmed by assiduity. Every strange woman seemeth unto us a comely woman; and every man knoweth by experience that the continual sight of one another cannot give the pleasure which cometh of taking and leaving by fits and starts. As for me, these interruptions fill me with a fresh love towards my family, and restore me in pleasanter fashion to the groove of my home. And I know that kindness hath arms long enough to stretch and join across from one corner of the world to another—more especially this married sort of kindness, in the which there existeth a constant intercommunication of services which awaken obligation and remembrance. (Of Vanity.)

The fact that happy marriage is so rare is a sign of its value. When we fashion it finely and take it the right way, there is no nobler institution in society. (On Some Verses of Virgil.)

He was far from being a Lothario and yet by no means a truly domestic character. "And truly I was then drawn unto it more ill prepared and less tractable than I am at present after having made trial of it; and as libertine as I am taken to be, I have in truth more strictly observed the laws of wedlock than I either promised or hoped." He considered mutual respect and identity of interests the foundation of proper conjugal relations, but there is genuine tenderness and appreciation of her many good qualities in the letter of condolence addressed to his wife in relation to the loss of their first child. Montaigne's marriage and his attitude to love and women have been much discussed. He was not above nor beneath observing the conventions, proprieties and externals of a gentleman's position in the social arrangement. For the *marriage à la mode* in Hogarth's sense he had no use. The marriage after the good old French fashion he respected. It agreed with him. The union was marked by little romantic passion but by much respect and consideration on both sides. Six children were born to the couple, all girls, only one of whom attained adolescence. Montaigne's paternal affection

centered principally around the creations of his brain. If not a model of virtue, he certainly was above the bulk of his contemporaries in the matter of morals; but not so much through any ardent belief in the obligation to be pure as from a certain natural fastidiousness, clean instincts and a distaste for vice.

Montaigne maintained with great earnestness throughout his writings that it was untenable to think of soul and body as separate and independent entities and he indignantly denies that woman's love is the wholly spiritual thing that some pretend. His writings have some pointed allusions to the peculiarities of the fair, both maids and wives, but he may be regarded as an early recognizer, if not an apostle, of the doctrine of the equality of the sexes, holding that "apart from education and custom the difference is not great." He is constantly harping upon the indivisibility, the interdependence of the body and the soul.

Those do wrong who wish to disjoin our two great halves, and isolate them one from the other. They should, on the contrary, be joined and reunited. The soul must be commanded not to draw aside, to keep itself apart, to despise and desert the body—indeed, it cannot possibly do so excepting through some ill-shaped, apish trick. Rather should the soul strike fresh alliance with the body, embrace it, cherish it, control and counsel it, reestablish it and bring it back when it swerveth. In short, the soul should marry the body and serve it as a husband, to the end that their property should not appear to be different and contrary, but one and the same. (Of Presumption.)

That opinion which disdaineth our natural life is ridiculous, for, after all, our life is our being, our all. It is against Nature that we should despise ourselves and set ourselves not to care about ourselves. This is a peculiar malady. No other creature is known to hate and despise itself; and it is for a like vanity that we desire to be different from what we are. (The Custom of the Isle of Cea.)

'Tis not the soul, 'tis not a body that we are

training up, but a man, and we ought not to divide him. (Education of Children.)

For my part I must ingeniously declare, that the puff of every accident not only carries me along with it, according to its own proclivity, but that moreover I discompose, and trouble myself, by the instability of my own posture; and whoever will look narrowly into his own bosom, will hardly find himself twice in the same condition. I give my soul sometimes one face, and sometimes another, according to the side I turn her to. If I speak variously of myself, it is, because I consider myself variously. All contrarieties are there to be found, in one corner or another, or after one manner or another. Bashful, insolent, chaste, lustful, prating, silent, laborious, delicate, ingenious, heavy, melancholic, pleasant, lying, true, knowing, ignorant, liberal, covetous, and prodigal, I find all this in myself more or less according as I turn myself about; and whoever will sift himself to the bottom, will find in himself, even by his own judgment this volubility and discordance. In a word, I have nothing to say of myself entirely, simply, and solidly without mixture, and confusion. (Of the Inconstancy of Our Actions.)

To what end do we dismember by divorce, a building united by so mutual and brotherly a correspondence? Let us, on the contrary, repair and corroborate it by mutual offices, let the mind rouse and quicken the heaviness of the body, and the body stop and fix the levity of the soul. (Of Experience.)

The asceticism of the Middle Ages and of the early Church was abhorrent to him. He was too steeped in Latin and Greek lore, too much infected with the revival of respect for the human body that came with the Renaissance to tolerate the vilification of the body which passed for evidences of saintliness in anchorite and pilgrim.

'Tis always a soul, that by its faculty, reasons, remembers, comprehends, judges, desires, and exercises all its other operations by divers instruments of the body, as the pilot guides his ship according to his experience, one while straining or slacking the cordage, one while

hoisting the main-yard, or removing the rudder, by one and the same strength carrying on so many several effects: and that it is lodged in the brain, which appears in that the wounds and accidents that touch that part, do immediately offend the faculties of the soul. (The Apology.)

His study of humanity and his reverence for nature convinced him of the oneness of man. His admiring disciple Mlle. de Gournay had caught the spirit of her master when she wrote this aphorism. "To the common herd the soul is only useful as salt is useful to a hog—to keep it from corruption."

PERSONAL TRAITS AND HABITS

A strange and unusual characteristic of his youth was the very frequent thought of death and this, the natural accompaniment of middle age, became an ever-deepening shadow with the advent of sickness and invalidism. Montaigne did not fight against this inclination to ponder on dissolution as a morbid and perhaps dangerous one and when suffering and disease made death an ever-lurking presence at his elbow he entertained it and looked it squarely in the face.

There is nothing which I have more constantly entertained myself withal than imaginations of death, even in the most wanton season of my age. (That Men Are not to Judge of Our Happiness till after Death.) In the company of ladies, and in the height of mirth, some have perhaps thought me possessed with some jealousy, or meditating upon the uncertainty of some imagined hope, while I was entertaining myself with the remembrance of someone surprised a few days before with a burning fever of which he died returning from an entertainment like this with his head full of idle fancies of love and jollity, as mine was then, and that for ought I knew the same destiny was attending me. (Study of Philosophy is to Learn to Die.)

Later we shall quote him more extensively in this connection for it is here that his philosophy reaches its fastigium of grandeur and beauty.

There is a tinge of real regret in his comments on his height for he was below the average. Montaigne deemed dignity of stature an essential of manly beauty.

My height is rather below the average. This defect hath not only the drawback of ugliness, but, in addition, that of inconvenience. A beautiful figure, in truth, is the only beauty allowed to men. For the rest, my figure is strong and well set, my face not fat but full, my complexion—between the jovial and the melancholy—showeth moderately sanguine and of tempered heat. For my health, it is steady and gay. . . . Now I am of something lower than the middle stature, a defect that not only borders upon deformity, but carries withal a great deal of inconvenience along with it, especially those who are in command; for the authority which a graceful presence, and a majestic mien beget, is wanting. . . . The other beauties belong to women, the beauty of stature is the only beauty of men. Where there is a contemptible stature, neither the largeness and roundness of the forehead nor the whiteness and sweetness of the eyes, nor the moderate proportion of the nose, nor the littleness of the ears and mouth, nor the evenness and whiteness of the teeth, nor the thickness of a well-set brown beard, shining like the husk of a chestnut, nor curled hair, nor the just proportion of the head, nor a fresh complexion, nor a pleasing air of a face, nor a body without any offensive scent, nor the just proportion of limbs, can make a handsome man. I am, as to the rest, strong, and well knit, my face is not puffed, but full, and my complexion betwixt jovial and melancholic, moderately sanguine and hot. (Of Presumption.)

His garments were usually either white or black and in walking or riding he carried a cane. He set forth on his journeying with a coat of no fashion trimmed with rough hair, and provided with two caps. His nether garments he did not vary with the season. Of his personal habits and tastes he writes freely and fully. He was absent-minded and forgetful, indeed his memory was the poorest imaginable. He slept nine hours a day,

but had no siesta. Two meals sufficed him and he preferred them simple. He had a keen relish for fish, a real weakness for crawfish on which he fed every day for the first two hundred leagues of his foreign travels; but none were set before him at Rovere and that circumstance, or the equanimity with which Montaigne endured the omission, astonished his scribe.

Long sittings at meat both trouble me, and do me harm; for, be it for want of better countenance, or that I have accustomed myself to it from a child, I eat all the while I sit. Therefore it is, that at my own house, though the meals there are of the shortest, I usually sit down a little while after the rest. . . . They whose concern it is to have a care of me, may very easily hinder me from eating anything they think will do me harm; for in such things I never covet nor miss anything I do not see: but withal, if it once comes in my sight, 'tis in vain to persuade me to forbear, so that when I design to fast, I must be parted from those that eat suppers, and must have only so much given me, as is required for a regular collation; for if I sit down to table, I forget my resolution. When I order my cook to alter the manner of dressing any dish of meat, all my family know what it means, that my stomach is out of order, and that I shall scarce touch it; I love to have all meats that will endure it very little boiled or roasted, and love them mightily mortified, and even to stinking in many. Nothing but hardness generally offends me; of any other quality I am as patient and indifferent as any man I have known; so that contrary to the common humor, even in fish, it often happens, that I find them both too fresh and too firm: not for want of teeth, which I ever had good, even to excellence, and that age does but now begin to threaten at this time of my life. I have ever been used every morning to rub them with a napkin, and before and after dinner. God is favorable to those whom he makes to die by degrees; 'tis the only benefit of old age; the last death will be so much the less painful; it will kill but a quarter of a man; or but half a one at most. I have one tooth lately fallen out without drawing, and without pain; it

was the natural term of its duration. . . Eating too much hurts me, but for the quality of what I eat, I do not yet certainly know that any sort of meat disagrees with my stomach; neither have I observed that either full-moon or decrease, spring or autumn, are hurtful to me. We have in us motions that are inconstant, and for which no reason can be given. For example, I found radishes first grateful to my stomach, since that nauseous, and now at present grateful again. In several other things likewise, I find my stomach and appetite to vary after the same manner. I have changed and changed again from white to claret, from claret to white. I am a great lover of fish, and consequently make my fasts feasts, and my feasts fasts; and believe what some people say, that it is more easy of digestion than flesh. . . I never keep my legs and thighs warmer in winter than in summer, one single pair of silk stockings is all: I have suffered myself for the relief of my rheumatism to keep my head warmer, and my belly upon the account of my colic: my diseases in a few days habituated themselves, and disdained my ordinary provisions. I was presently got from a single cap to a napkin, and from a napkin to a quilted cap. The belly-pieces of my doublet serve only for decency, they signify nothing, if I do not add a hare's skin or a stomacher, and wear a gallot upon my head. . . I am not very apt to be thirsty, either well or sick, my mouth is indeed apt to be dry, but without thirst; and commonly I never drink but with thirst that is created by eating, and then I drink as hard as any. I drink pretty well for a man of my pitch: in summer, and at a hungry meal, I do not only exceed the limits of Augustus, that drank but thrice precisely; but not to offend Democritus his rule, who forbade that men should stop at four times, as an unlucky number; I proceed for need to the fifth glass, about three half pints. For the little glasses are my favorites; and I take a delight to drink them off, which other people avoid as an indecent thing. I mix my wine sometimes with half, sometimes the third part water; and when I am at home, by an ancient custom that my father's physician prescribed both to him and himself, they mix that which is designed for me in the buttery three or four hours before 'tis

brought in. . . I fear a fog, and fly from smoke, as from the plague. . . and amongst the difficulties of war, reckon the choking dust they make us ride in a whole day together. I have a free and easy respiration, and my colds for the most part go off without offense to the lungs, and without a cough. The heat of summer is more an enemy to me than the cold of winter. (Of Experience.)

Melon was his preferred fruit. He wanted his bread unsalted but was fond of salt meats and likewise of sauces. A variety of dishes he abominated. He ate with his fingers, in a nervous haste that often made him bite fingers, tongue and lips. This was not gluttony. With his usual calm indifference to the effect of his revelations upon the reader he tells us in this connection that there were men in Rome who taught graceful mastication just as graceful carriage in walking is taught. This is to admit that he presented a sorry picture at table and that he did not greatly care.

Eating rather bored him save in pleasant company. The numerous allusions to food are made by a man who makes no pretense, has nothing to hide, reckons not of critics and who from the time he began to write had increasingly to consider what he ate on account of his health. A tester and bed curtains were essential to his comfort and he heartily approved of German stoves and of a warm bedroom, being in mortal dread of chilling by the night air or that of the early morning.

A German made me very merry at Augusta ("Augsburg") with disputing the inconvenience of our hearths by the same arguments which we commonly make use of in decrying their stoves: for, to say the truth, that smothered heat, and then the scent of that heated matter of which the fire is composed, very much offend such as are not used to them, not me; but as to the rest, the heat being always equal, constant and universal, without flame, without smoke, and without the wind that comes down our chimneys, they may many ways endure comparison

with ours. Why do we not imitate the Roman architecture? For, they say, that anciently fires were not made in their houses, but on the outside, and at the foot of them, from whence the heat was conveyed to the whole fabric by pipes contrived in the wall, which were drawn twining about the rooms that were to be warmed: which I have seen plainly described somewhere in Seneca. (Of Experience.)

But he required no warming pan and preferred a hard bed. He was no Sybarite.

No season is enemy to me, but the parching heat of a scorching sun; for the umbrellas made use of in Italy, ever since the time of the ancient Romans, more burden a man's arm than they relieve his head. . . . I love rain, and to dabble in the dirt, as well as tame ducks do; the change of air and climate never concern me: every sky is alike. I am only troubled with inward alterations, which I breed within myself, and those are not so frequent in travel. . . . I have learned to travel after the Spanish fashion, and to make but one stage of a great many miles; and in excessive heats, I always travel by night, from sunset to sunrising. The other method of baiting by the way, in haste and hurry to gobble up a dinner, is especially in short days, very inconvenient. (Of Vanity.)

Prior to the advent of his lithemia we may conceive him to have possessed a rugged constitution, full of nervous energy. Slenderly built but energetic, of that resistant type familiarly designated "tough as whit-leather," sickness never weakened his will and but little hampered him in the execution of it. The same nicety of taste which made him lead a clean life, utterly independent of conscientious or religious scruples, made him careful of his person. He had a real physical modesty but was not foolish, and heaps ridicule on Cyrus and Maximilian for their extreme unwillingness to uncover the person. If he ate with his fingers he made full use of a napkin, delighted to have one after each course. He could not be comfortable unless he washed on rising. He cleaned his teeth twice a day

with a napkin. He appears to have been hypermetropic. "My sight, is perfect, entire, and discovers at a very great distance, but is soon weary, which makes me that I cannot read long, but am forced to have one to read to me." (Of Presumption.) "I am to this hour ignorant of the use of spectacles, and can see as far as ever I did, or any other. 'Tis true, that in the evening I begin to find a little trouble and weakness in my sight, if I read; an exercise that I have always found troublesome, especially by night." (Of Experience.)

Occasionally Montaigne fasted not as an act of religious observance but for the physical benefit he experienced from it. "Repletion hath in my case a cruelly sluggish effect on activity." He liked to rest after meals and to listen to but not engage in talk. Before meals he found it wholesome and pleasant to wax even vociferous. He stood straight and held his head high; his step was firm, his gestures lively. His voice was of pleasing timbre. Compared to his father he confesses himself awkward. Thus in doffing his hat to a passing acquaintance in Rome he struck himself in the eye and was incommoded by the accident for several days. The recital of this incident is typical of Montaigne. It has been said that "Tom Jones" is the only faithful portrait of a man to be found in fiction. In his description of himself Montaigne gives us a picture of a real character drawn with pitiless lack of reserve. In conversation he was voluble, impetuous.

He was fond of hunting though soft-hearted as regards the game.

I carry my feeling to such a degree of softness that I cannot see the neck of a fowl wrung without displeasure, and cannot bear to hear the wail of a hare caught by my hounds, although riding to the chase is one of my excessive pleasures. (Of Cruelty.)

He played with his cat and must have been rather fond of animals. He says of them.

Considering that the same Master hath given us lodging in this palace for his service, and that they belong, like us, to his family, nature hath good reason to enjoin upon us some kind of esteem and affection towards them. Indeed, when all is said, there existeth a common human duty, a certain respect the which attacheth us not only to the beasts who have life and sentiment, but even to the trees and plants. We owe justice to men, and grace and benignity to the other creatures, who are not capable of justice. There is a sort of intercourse between them and us, and a sort of mutual obligation. (Of Cruelty.)

In how many several sorts of ways do we speak to our dogs and they answer us. (The Apology.)

Movement and activity of body were curiously blended with a certain sluggishness. "I move with difficulty and am dilatory in all things: in getting up, in going to bed, at my meals. Seven o'clock is early for me, and where I am master I never dine before eleven, or sup till after six." (Of Presumption.) "My feet are so unsteady, so unsure, so ready to totter and to feel the earth crumble beneath them—my eyesight is so ill-regulated—that when I fast, I am another man than he who hath eaten a repast." (The Apology.) He could not keep his feet still but in his study he liked to perch them high in front of him. He got great comfort from scratching his head to provoke thought and regarded scratching generally as one of the little physical luxuries of life. "I do not remember that I ever had the itch, and yet scratching is one of nature's sweetest gratifications, and nearest at hand, but the smart follows too near. I use it most in my ears, which are often apt to itch. I came into the world with all my senses entire, even to perfection. My stomach is commodiously good, as also is my head and my breath; and for the most part, uphold themselves so in the height of fevers." (Of Experience.)

Montaigne's health became seriously impaired after he had been in retreat in his

tower, devoted to study, reflection and writing for about six and a half years. His withdrawal to this sanctum in the first instance was doubtless induced in part by considerations of health.

Every man should have a back-shop all his own. . . in which he can establish his liberty, his chief refuge, his best solitude. And here it is that he must hold his ordinary intercourse with himself. (Of Solitude.)

Miserable, to my way of thinking, is he who hath no place where he can be at home to himself, where he can privily court himself: where he can hide himself. To me it is much more bearable to be always alone than never. (Of Three Commerces.)

His beloved refuge, that famous temple of the soul but for which the world of letters and the world of thought would have been infinitely the poorer, had on the ground floor a chapel. Mass said there could be heard by the lord of the domain lying comfortably in bed above. The second story contained the library and a communicating chamber, cozy and warm. The regular bedroom was on the third story. The walls of the library were decorated with musical instruments, pictures, inscriptions. On the rafters were favorite sayings from Homer, Horace, Plato, Pliny, St. Paul, Terence, Ecclesiastes, the Psalms, etc. The books of which the owner was justly proud, numbered a thousand, a goodly and unusual collection for citizen or king. Of these thousand volumes but seventy-six have been positively identified. Someone, by accident, picked up in a second hand shop in Paris his copy of Caesar's Commentaries with over six hundred annotations in the essayist's own hand. We know that he had a Greek Bible, Münster's Cosmography, (a sort of guide book to Europe), four works on theology—two of them heterodox—and five volumes on law and medicine respectively. In his retirement Montaigne turned to books. He could not play the gentleman farmer and cared nothing for the breeding of cattle nor did the country charm

is particularly feared in this disease, does not so much trouble me. And if, being alone, I should have taken it, it had been a more sprightly and a longer flight. 'Tis a kind of death, that I do not think of the worst sort; 'tis usually short, stupid, without pain, and consoled by the public condition; without ceremony, without mourning, and without a crowd. But as to the people about us, the hundredth part of them could not be saved. (Of Physiognomy.)

AN OBSERVER AND RECORDER OF NATURAL PHENOMENA

In his minute and full rehearsal of all the symptoms of La Boétie's last illness, in his account of how, during those sad hours of waiting, they conversed together about what the ancient physicians said of the malady, Montaigne showed himself such a keen observer and recorder of the phenomena of disease that one is strengthened in the feeling, derived from many manifestations of his mind and heart, that had he lived today he would have been ideally fitted to practice medicine.

What man of scientific training could write a more accurate and succinct report of a case than the following?

Two days ago I saw a child, that two men and a nurse, who said themselves to be the father, the uncle, and the aunt of it, carried about to get money by showing it, by reason it was so strange a creature. It was, as to all the rest, of a common form, and could stand upon its feet, could go and gabble much like other children of the same age; it had never as yet taken any other nourishment but from the nurse's breasts, and what, in my presence, they tried to put into the mouth of it, it only chewed a little, and spit it out again without swallowing; the cry of it seemed indeed a little odd and particular, and it was just fourteen months old. Under the breast it was joined to another child, but without a head, and that had the spine of the back without motion, the rest entire; for though it had one arm shorter than the other, it had been broken by accident at their birth; they were joined breast to breast, and as if a lesser child would reach the arms about the

neck of one something bigger. The juncture and thickness of the place where they were conjoined, was not above four fingers, or thereabouts, so that if you thrust up the imperfect child, you may see the navel of the other below it, and the joining was betwixt the paps and the navel. The navel of the imperfect child could not be seen, but all the rest of the belly; so that all the rest that was not joined of the imperfect one, as arms, buttocks, thighs, and legs, hung dangling upon the other, and might reach to the midleg. The nurse moreover told us that it urined at both bodies, and also the members of the other were nourished, sensibly, and in the same plight with that she gave suck to, excepting that they were shorter, and less. (Of a Monstrous Child.)

He sounds like a doctor when he says:

It is probable that the chief credit of miracles, of visions, and spells, and such abnormal effects, hath its source in the power of imagination, acting principally upon the minds of the vulgar, the which are softer than others. Their belief has been so strongly got hold of, that they think they see what they do not see. (Of the Force of Imagination.)

He realizes the power of the imagination even to kill.

A woman fancying she had swallowed a piece of braed, cried out of an intolerable pain in her throat, where she thought she felt it stick: but an ingenious fellow that was brought to her, seeing no outward tumor nor alteration, supposing it only to be conceit taken at some crust of bread that had hurt her as it went down, caused her to vomit, and cunningly, unseen, threw a crooked pin into the basin, which the woman no sooner saw, but believing she had cast it up, she presently found herself eased of her pain. I myself knew a gentleman, who having treated a great deal of good company at his house, three or four days after bragged in jest (for there was no such thing) that he had made them eat of a baked cat; at which, a young gentlewoman, who had been at the feast, took such a horror, that falling into a violent vomiting and a fever, there was no possible means to save her. Even brute beasts are also subject to the force of imagination

as well as we; as is seen by dogs, who die of grief for the loss of their masters, and are seen to quest, tremble, and start, as horses will kick and whinny in their sleep. Now all this may be attributed to the affinity and relation betwixt the souls and bodies of brutes, but 'tis quite another thing when the imagination works upon the souls of rational men, and not only to the prejudice of their own particular bodies, but of others also. (Of the Force of Imagination.)

He had the physician's contempt for lack of self-control and notes oddities of behavior due to it, to subtle physical instincts or to high-strung nerves.

Who would be astonished at so strange a constitution as that of Demophon, steward to Alexander the Great, who sweat in the shade, and shivered in the sun? I have seen those who have run from the smell of a mellow apple with greater precipitation than from a harquebuse shot; others run away from a mouse, others vomit at the sight of cream; others ready to swoon at the sight of a cat, as Germanicus, who could neither endure the sight nor the crowing of a cock. I will not deny, but that there may peradventure be some occult cause and natural aversion in these cases; but certainly a man might conquer it, if he took it in time. Precept has in this wrought so effectually upon me, though not without some endeavor on my part. Young bodies are supple, one should therefore in that age bend and ply them to all fashions and customs. (Education of Children.)

Smiths, millers, pewterers, forgemen, and armorers, could never be able to live in the perpetual noise of their own trades, did it strike their ears with the same violence that it does ours. My perfumed doublet gratifies my own smelling at first, as well as that of others; but after I have worn it three or four days together, I no more perceive it, but it is yet more strange, that custom, notwithstanding the long intermissions and intervals, should yet have the power to unite, and establish the effect of its impressions upon our senses, as is manifest in such as live near unto steeples, and the frequent noise of the bells. I myself lie at home in a tower, where every morning and evening a

very great bell rings out the Ave Maria, the noise of which shakes my very tower, and at first seemed insupportable to me; but having now a good while kept that lodging, I am so used to it that I hear it without any manner of offense, and often without awaking at it. (Of Custom.)

I saw the other day, at my own house, a little fellow who came to show himself for money, a native of Nantes born without arms, who has so well taught his feet to perform the services his hands should have done him, that indeed they have half forgot their natural office, and the use for which they were designed; the fellow too calls them his hands, and we may allow him so to do, for with them he cuts anything, charges and discharges a pistol, threads a needle, sows, writes, and puts off his hat, combs his head, plays at cards and dice, and all this with as much dexterity as any other could do who had more, and more proper limbs to assist him; and the money I gave him he carried away in his foot, as we do in our hand. (Of Custom.)

Physicians hold, that there are certain complications that are agitated by the same sounds and instruments, even to fury. I have seen some, who could not hear a bone gnawed under the table without impatience; and there is scarce any man, who is not disturbed at the sharp and shrill noise that the file makes in grating upon the iron; as also to hear chewing near them, or to hear any one speak, who has an impediment in the throat or nose, will move some people even to anger and hatred. (The Apology.)

On the other hand the spirit reacts on the body:

To a discontented and afflicted man, the light of the day seems dark and overcast. Our senses are not only depraved, but very often stupefied by the passions of the soul. How many things do we see, that we do not take notice of, if the mind be taken up with other thoughts? . . . It appears that the soul retires within, and amuses the power of the senses. And so both the inside, and the outside of man is full of infirmities and mistakes. They who have compared our lives to a dream, were peradventure more in the right than they

were aware of; when we dream, the soul lives, works, and exercises all its faculties, neither more nor less, than when awake; but more largely and obscurely; yet not so much neither, that the difference should be as great as betwixt night and the meridional brightness of the sun, but as betwixt night and shade; there she sleeps, here she slumbers; but whether more or less, 'tis still dark and Cymmerian darkness. We wake sleeping, and sleep waking. I do not see so clearly in my sleep; but as to my being awake, I never found it clear enough, and free from clouds. Moreover, sleep, when it is profound, sometimes rocks even dreams themselves asleep, but our awaking is never so spritely, that it does rightly, and as it should, purge and dissipate those ravings and whimsies, which are waking dreams, and worse than dreams. Our reason and soul receiving those fancies and opinions that like come in dreams, and authorizing the actions of our dreams, with the approbation that they do those of the day; wherefore do we not doubt, whether our thought and action is another sort of dreaming, and our waking a certain kind of sleep? (The Apology.)

In his graphic description, too long for citation here, of a severe fall from his horse that caused him to vomit blood and be out of his senses, he carefully analyzes everything; automatic and involuntary movements; the distinction between molecular and somatic death; partial return to consciousness with its vague, delightful unreality; instinctive acts; the existence of a subconscious ego. From the memory of the episode he argues that death, to which he had come near, may be very far from the horrible experience to the victim of it that the alarmed and sorrowing witnesses imagine.

My stomach was so oppressed with the coagulated blood, that my hands moved to that part of their own voluntary motion, as they frequently do to the part that itches, without being directed by our will. There are several animals and even men, in whom one may perceive the muscles to stir and tremble after they are dead. Having been by the way, and

two long hours after, given over for a dead man, I began to move and to fetch my breath; for so great abundance of blood was falling into my stomach, that nature had need to rouse her forces to discharge it. They then raised me upon my feet, where I threw off a great quantity of pure florid blood, as I had also done several times by the way, which gave me so much ease, that I began to recover a little life, but so leisurely and by so small advances, that my first sentiments were much nearer the approaches of death than life. The remembrance of this accident, which is very well imprinted in my memory, so naturally representing to me the image and idea of death, has in some sort reconciled me to that untoward accident. When I first began to open my eyes after my trance, it was with so perplexed, so weak and dead a sight, that I could yet distinguish nothing, and could only discern the light. As to the functions of the soul, they advanced with the same pace and measure with those of the body. I saw myself all bloody, my doublet being stained and spotted all over with the blood I had vomited; and the first thought that came into my mind, was, that I had a harquebuse shot in my head; and indeed at the same time, there were a great many fired round about us. Methought, my life but just hung upon my lips, and I shut my eyes, to help, methought, to thrust it out; and took a pleasure in languishing and letting myself go. It was an imagination that only superficially floated upon my soul, as tender and weak as all the rest, but really, not only exempt from pain, but mixed with that sweetness and pleasure that people are sensible of, when they indulge themselves to drop into a slumber. I believe it is the very same condition those people are in, whom we see to swoon with weakness, in the agony of death, and am of opinion that we lament them without cause, supposing them agitated with grievous dolours, or that their souls suffer under painful thoughts. . . . It happens that in the yawning of sleep, before it has fully possessed us to perceive, as in a dream, what is done about us, and to follow the last things are said with a perplexed and uncertain hearing, which seem but to touch upon the borders of the soul; and make answers to the last words have been spoken to

us, which have more in them of fortune than sense. Now seeing I have effectually tried it, I make no doubt but I have hitherto made a right judgment. For first being in a swoon, I labored with both hands to rip open the buttons of my doublet, (for I was without arms) and yet I felt nothing in my imagination that hurt me; for we have many motions in us, that do not proceed from our direction. . . . As I drew near my own house, where the alarm of my fall was already got before me, and that my family were come out to meet me, with the hubbub usual in such cases; I did not only make some little answer to some questions were asked me, but they moreover tell me, that I had so much sense about me as to order them to give a horse to my wife, who, I saw, was toiling and laboring along the road, which was a steep and uneasy one.¹ This consideration should seem to proceed from a soul, that retained its functions, but it was nothing so with me. I knew not what I said or did, and they were nothing but idle thoughts in the clouds, that were stirred up by the senses of the eyes and ears, and proceeded not from me. I knew not for all that, or whence I came, or whither I went, neither was I capable to weigh and consider, what was said to me: these were light effects, that the senses produced of themselves, as of custom; what the soul contributed was in a dream, as being lightly touched, licked and bedewed by the soft impression of the senses. Notwithstanding, my condition was in truth very easy and quiet, I had no afflictions upon me, either for others or myself. It was an extreme drooping and weakness without any manner of pain. I saw my own house, but knew it not. When they had put me to bed, I found an inexpressible sweetness in that repose; for I had been damnably tugged and lugged by those poor people, who had taken the pains to carry me upon their arms a very great and a very ill way, and had in so doing all quite tired out themselves twice or thrice one after another. They offered me several remedies but I would take none, certainly believing that I was mortally wounded in the head. And in earnest, it had been a very happy death, for the weakness of my understanding, deprived me of the

faculty of discerning, and that of my body from the sense of feeling. I suffered myself to glide away so sweetly, and after so soft and easy a manner, that I scarce find any other action less troublesome than that was. This long story, of so light an accident, would appear vain enough, were it not for the knowledge I have gained by it for my own use; for I do really find, that to be acquainted with death, is no more but nearly to approach it. (Use Makes Perfectness.)

Such as have been acquainted with these faintings, proceeding from weakness, do say that they are therein sensible of no manner of pain, but rather feel a kind of delight, as in a passage to sleep and rest. These are studied and digested deaths. (Of Judgment of the Death of Another.)

THE INTERPRETATION OF THE SENSES

He goes deeply into the question of the senses, affirming that we cannot deny the evidences they adduce of the reality of externals.

The senses are our proper and first judges, which perceive not things but by external accidents. (Of the Act of Conferring.)

There can be nothing absurd to a greater degree, than to maintain that fire does not warm, that light does not shine, and, that there is no weight nor solidity in iron, which are advertisements conveyed to us by the senses; neither is there belief nor knowledge in man, that can be compared to that for certainty. The first consideration I have upon the subject of the senses is, that I make a doubt whether or no man be furnished with all natural senses. I see several animals who live an entire and perfect life, some without sight, others without hearing: who knows whether to us also, one, two, or three, or many other senses may not be wanting? For if any one be wanting, our examination cannot discover the defect. 'Tis the privilege of the senses to be the utmost limit of our discovery: there is nothing beyond them that can assist us in exploration, not so much as one sense in the discovery of another. . . . It is impossible to make a man naturally blind, conceive that he does not see, impossible to make him desire sight, or to be sensible of his defect. (The Apology.)

¹ Cotton's translation as properly corrected by Hazlitt.

He raises the question whether animals may not be possessed of senses we lack.

What do we know but that the difficulties which we find in several effects of animals which exceed our capacity, are not produced by faculty of some sense that we are defective in? And whether some of them have not by this means a life more full and entire than ours? We seize an apple as it were with all our senses: we there find redness, smoothness, odor, and sweetness? But it may have other virtues besides these, as to heat, or bind, which no sense of ours can have any reference unto. Is it not likely that there are sensitive faculties in nature that are fit to judge of, and to discern those which we call the occult properties in several things, as for the loadstone to attract iron; and that the want of such faculties is the cause that we are ignorant of the true essence of such things? 'Tis peradventure some particular sense that gives cocks to understand what hour it is of midnight, and when it grows to be towards day, and that makes them to crow accordingly; that teaches chickens, before they have any experience of what they are, to fear a spar-hawk, and not a goose, or a peacock, though birds of a much larger size; that cautions them of the hostile quality the cat has against them, and makes them not to fear a dog? To arm themselves against the mewing (a kind of flattering voice) of the one, and not against the barking, a shrill and threatening voice of the other. That teaches wasps, ants, and rats, to fall upon the best pear, and the best cheese, before they have tasted them, and inspires the stag, elephant, and serpents, with the knowledge of a certain herb proper for their cure. There is no sense that has not a mighty dominion, and that does not by its power introduce an infinite number of knowledges. If we were defective in the intelligence of sounds of music, and of the voice, it would cause an unimaginable confusion in all the rest of our science. For, besides what appertains to the proper effect of every sense, how many arguments, consequences, and conclusions do we draw to other things, by comparing one sense with another? Let an understanding man imagine human nature originally produced without the sense of seeing, and consider what ignorance

and trouble such a defect would bring upon him, what a darkness and blindness in the soul; he will then see by that, of how great importance to the knowledge of truth, the privation of such another sense, or of two or three, should we be so deprived, would be. We have formed a truth by the consultation and concurrence of our five senses, but peradventure, we should have the consent and contribution of eight or ten, to make a certain discovery of our own being. The sects that controvert the knowledge of man, do it principally by the uncertainty and weakness of our senses. For since all knowledge is by their means and mediation conveyed unto us, if they fail in their report, if they corrupt, or alter what they bring us from without, if the light which by them creeps into the soul be obscured in the passage, we have nothing else to hold by. (The Apology.)

Despite his fear of the doctors he would have made a poor Christian Scientist.

Like a musket-bullet, under the forefinger, the middle finger being lapped over it, which feels so like two, that a man will have much ado to persuade himself there is but one; the end of the two fingers feeling each of them one at the same time. For that the senses are very often masters of our reason, and constrain it to receive impressions which it judges and knows to be false, is frequently seen. I set aside the sense of feeling, that has its functions nearer, more lively and substantial; that so often by the effect of the pains it helps the body to subvert and overthrows all those fine stoical resolutions, and compels him to cry out of his belly, who has resolutely established this doctrine in his soul, that the colic, and all other pains and diseases are indifferent things; not having the power to abate anything of the sovereign felicity, wherein the wise man is seated by his virtue. (The Apology.)

Objective realities exist. There are qualities inherent in matter whether we perceive them or not.

For, it is not said, that the essence of things have a relation to man only; hardness, whiteness, depth and sharpness, have reference to the service and knowledge of animals as well

as to us; and nature has equally designed them for their use. When we press down the eye, the body that we look upon, we perceive to be longer, and more extended; many beasts have their eyes so pressed down: this length therefore is peradventure the true form of that body, and not that which our eyes give it in the usual state. If we close the lower part of the eye, things appear double to us. If our ears be hindered, or the passage stopped with anything, we receive the sound quite otherwise, than we usually do; the animals likewise, who have either the ears hairy, or but a very little hole instead of an ear, do not consequently hear as we do; but another kind of sound. We see at festivals and theaters, the opposing a painted glass of a certain color to the light of the flambeaus, all things in the room appear to us green, yellow or violet. . . . 'Tis likely that the eyes of animals, which we see to be of divers colors, do produce the appearance of bodies the same with their eyes. We should therefore, to make a right judgment of the operations of the senses, be first agreed with beasts, and secondly, amongst ourselves, which we by no means are, but enter at every turn into dispute; forasmuch as one hears, sees, or tastes something otherwise than another does, and contests as much as upon any other thing, of the diversity of the images that the senses represent to us. A child, by the ordinary rule of nature, hears, sees and tastes otherwise than a man of thirty years old, and he, than one of three-score. The senses are in some more obscure and dusky, and more open and quick in others; and we receive things variously according as we are, and accordingly as they appear to us. Now our perception being so uncertain and contraverted, it is no more a wonder if we are told that we may declare that snow appears white to us, but that to affirm that it is in its own essence really so, is more than we are able to justify: and this foundation being shaken, all the knowledge in the world must of necessity fall to ruin. What, do our senses themselves hinder one another? A picture seems raised and embossed to the sight, in the handling it seems flat to the touch: shall we say that musk, which delights the smell, and is offensive to the taste, is agreeable or no? There are herbs and unguents,

proper for one part of the body, that are hurtful to another: honey is pleasant to the taste, but offensive to the sight. As we see in the bread we eat, it is nothing but bread, but by being eaten, it becomes bones, blood, flesh, hair and nails. . . . The humidity sucked up by the root of a tree becomes trunk, leaf and fruit; and the air being but one, is modulated in a trumpet to a thousand sorts of sounds. Are they our senses, I would fain know, that in like manner form these subjects into so many divers qualities, or have they them really such in themselves? And upon this doubt, what can we determine of their true essence? Moreover, since the accidents of diseases, of raving, or sleep, make things appear otherwise to us than they do to the healthful, the wise, and those that are awake; is it not likely, that our right posture of health and understanding, and our natural humours, have also wherewith to give a being to things that have relation to their own condition, and accommodate them to themselves, as well as when they are disordered; and our health as capable of giving them an aspect as sickness? Why has not the temperate a certain form of objects relative to it as well as the intemperate: and why may it not as well stamp it with its own character as the other? He whose mouth is out of taste, says the wine is flat, the healthful man commends its flavor, and the thirsty its briskness. Now our condition always accommodating things to itself, and transforming them according to its own posture, we cannot know what things truly are in themselves, being that nothing comes to us but what is falsified and altered by the senses. Where the compass, the square, and the rule are crooked, all propositions drawn from thence, and all building erected by those guides, must of necessity be also defective. The uncertainty of our senses renders everything uncertain that they produce. (The Apology.)

PREJUDICE AGAINST PHYSICIANS

Like his father, Montaigne professed a horror of doctors. This was strengthened perhaps by a conviction that his friend La Boétie might have recovered but for the ill-advised ministrations of his physician,

and in one of his last essays he indulges in a diatribe against the faculty which we may all read with profit. But what he confessed and what he professed sometimes showed a certain lack of harmony in line with the many apparent contradictions of his character. Looking below the surface we find that Montaigne saw the foibles of the doctors of his day, had the intelligence to appreciate the mistakes they made but was not carried away by prejudice.

We repute physicians fortunate when they hit upon a lucky cure, as if there were no other art but theirs that could not stand upon its own legs, and whose foundations are too weak to support itself upon its own basis, and as if no other art stood in need of fortune's hand to assist in its operations. For my part, I think of physic as much good or ill as anyone would have me; for, thanks be to God, we have no great traffic together. I am of a quite contrary humour to other men, for I always despise it; but when I am sick, instead of recanting, or entering into composition with it, I begin yet more to hate, nauseate, and fear it, telling them who importune me to enter into a course of physic, that they must give me time to recover my strength and health, that I may be the better able to support and encounter the violence and danger of the potion: so that I still let nature work, supposing her to be sufficiently armed with teeth and claws to defend herself from the assaults of infirmity, and to uphold that contexture, the dissolution of which she flies and abhors: for I am afraid, lest instead of assisting her when grappled, and struggling, with the disease, I should assist her adversary, and procure new work, and new accidents to encounter. (Various Events, etc.)

He was really a friend of medicine and believed in the healing art, though he says, with his usual outspoken and unassuming frankness, that the doctors had done him no good. His pages reflect a terrible but true picture of the state of medicine in his day and when we realize that his excruciating pain was unrelieved, that he suffered from a complaint that we cannot heal today

with all our science, we must credit Montaigne with unusual fairness to see any good in us or our calling. Though he professed to repudiate us utterly still he did not do so. Little as he expected from them, he called in the doctors.

His writings abound with illustrations drawn from anatomy, physiology and pathology and he loved to express his ideas by references to the body:

Force and nerves cannot be borrowed; you can only borrow cloaks and furbelows. . . . Those who have a thin body, stuff it out with padding; those who have thin subject-matter swell it out with words. (Education of Children.)

For tender stomachs there is need of artificial ordinances and constraint; good stomachs simply make use of the ordinances prescribed by natural appetites. (Of Vanity.)

Intemperance is the pestilence which killeth pleasure, and temperance is not the flail of pleasure, it is the seasoning thereof. (Of Experience.)

And as we see women that without the knowledge of men do sometimes of themselves bring forth inanimate and formless lumps of flesh, but that to cause a natural and perfect generation they are to be husbanded with another kind of seed. (Of Idleness.)

A physician takes no pleasure in the health even of his friends, says the ancient comical Greek, nor a soldier in the peace of his country; and so of the rest. And, which is yet worse, let every one but dive into his own bosom, and he will find his private wishes spring and his sacred hopes grow up at another's expense. (Profit of One Man is the Inconvenience of Another.)

'Tis a sign of crudity and indigestion to vomit up what we eat in the same condition it was swallowed down, and the stomach has not performed its office, unless it has altered the form and condition of what was committed to it to concoct. (Education of Children.)

And as they say, that in our bodies there is a congregation of divers humors, of which, that is the sovereign, which according to the complexion we are of, is commonly most predominant in us; so, though the soil have in it divers

motions to give it agitation; yet must there of necessity be one to over-rule all the rest. (Cato the Younger.)

Do fevers, gouts and apoplexies, spare them any more, than one of us? When old age hangs heavy upon a prince's shoulders, can the yeomen of his guard ease him of the burden? When he is astonished with the apprehension of death, can the gentlemen of his bed-chamber comfort and assure him? When jealousy, or any other capricio swims in his brain, can our complements and ceremonies restore him to his good humour? The canopy embroidered with pearl and gold, he lies under, has no virtue against a violent fit of the stone or colic. . . . He is a sot, his taste is palled and flat; he no more enjoys what he has, than one that has a cold, relishes the flavour of canary; or than a horse is sensible of his rich caparison. (Of the Inequality Amongst Us.)

Could virtue itself put on flesh and blood, I believe the pulse would beat faster going on to an assault, than in going to dinner: that is to say, there is a necessity she should beat, and be moved upon this account. I have taken notice, as of an extra-ordinary thing of some great men, who in the highest enterprises, and greatest dangers, have detained themselves in so settled and serene a calm, as not at all to hinder their usual gayety, or break their sleep. (Of Sleep.)

So falling people extend their arms before them by a natural impulse, which prompts them to offices and motions, without any commission from us. (Use Makes Perfectness.)

I would as willingly lend a man my blood, as my pains. (Of Presumption.)

The diseases of the body explain themselves in increasing. We find that to be the gout, which we called a rheumatism or a strain. The diseases of the soul, the greater they are, keep themselves the more obscure; and the most sick are the least sensible. Therefore it is that with an unrelenting hand, they must often in the day be taken to task, opened and torn from the hollow of the heart. (Upon Some Verses of Virgil.)

These continual tricking drops make ulcers in me. . . . The Chirurgion's end is not only to eat away the dead flesh, that is but the

progress of his cure, he has a care over and above to fill up the wound with better and more natural flesh, and restore the member to its due estate. Whoever only proposes to himself to remove that which offends him, falls short, for good does not necessarily succeed evils; another evil may succeed and a worse. . . . Who knows but that God will have it happen, as it does in human bodies, that purge and restore themselves to a better estate by long and grievous maladies; which restores them a more entire and perfect health than that they took from them? (Of Vanity.)

I fancy that those features and moulds of a face, and those lineaments by which men guess at our internal complexions, and our fortunes to come, is a thing that does not very directly and simply lie under the chapter of beauty and deformity, no more than every good odor and serenity of air promises health, nor all fog and stink, infection and a time of pestilence. Such as accuse ladies of contradicting their beauty by their manners, do not always hit right; for, in a face which is none of the best, there may lie some air of probity and trust: as, on the contrary, I have seen betwixt two beautiful eyes, menaces of a dangerous and malignant nature. There are some physiognomies that are favorable, so that in a crowd of victorious enemies, you shall presently choose, amongst men you never saw before, one rather than another, to whom to surrender, and with whom to intrust your life, and yet not properly upon the consideration of beauty. (Of Physiognomy.)

Speaking of the propriety of referring a matter to the person proficient in it he says of physicians: "I upon that account the rather incline to credit what they report of the temperature of the air, of the health and complexions of princes, of wounds and diseases." (A Proceeding of Some Ambassadors.)

MONTAIGNE'S VIEWS ON HIS OWN AILMENTS

In his essay on "The Resemblance of Children to their Fathers," he laments that he was afflicted with the particular disease that attacked him towards middle life.

How human! We always think we would be better off with a different malady—that an injured foot would hurt less than a hand or vice versa according to which it is. “I am grown older by seven or eight years since I began [writing], neither has it been without some new acquisition. I have in that time been acquainted with the stone. Age could not possibly have laid upon me a disease for which, even from my infancy, I have had so great a horror and it is in truth of all the accidents of old age that of which I have ever been most afraid.” His father, towards the close of a long and active life, was a prey to the same malady and this perhaps accounts in part for his horror of it, an almost superstitious dread of the gout being over him like a cloud.

Mothers have reason to rebuke their children when they counterfeit having but one eye, squinting, lameness, or any other personal defect; for besides that their bodies being then so tender may be subject to take an ill bent, fortune, I know not how, sometimes seems to delight in taking us at our word; and I have heard several examples related of people who have become really sick by only feigning to be so. I have always used, whether on horseback, or on foot, to carry a stick in my hand, and so as to affect doing it with a grace. Many have threatened that this wantonness would one day be turned into necessity, that is, that I should be the first of my family that should have the gout. (Not to Counterfeit Being Sick.)

A more potent factor doubtless, in his dislike to the so-called healing art, was the full knowledge and appreciation of the barbarities of the “cutters” of the day, of the ignorant and violent methods they used for their cures, of the character of so-called surgery. Here is the true philosopher speaking, “Yet in eighteen months time or thereabout that I have been in this uneasy condition I have so inured myself to it as to be content to live in it and have found wherein to comfort myself and to hope.”

He says of the stone: “I am in conflict

with the worst, the most sudden, the most painful, the most mortal and the most irremediable of all diseases,” but he opines that even this dread malady “is very well to be endured by a man who has his soul free from the fear of death, and the menaces, conclusions and consequences which physic is ever thundering in our ears.” He trusts that the affliction of stone will overcome whatever in him still revolts at the thought of death and conquer his fear thereof, hoping at the same time that God will save him from going to the other extreme of desiring and wishing to die should the sharpness of his torture in the end prove greater than he can bear.

He thinks that external fortitude which subdues all expressions of suffering not an indispensable thing if the soul is indomitable. “’Tis no great matter what faces we cut if we find any ease by it . . . if agitation eases him let him tumble and toss at pleasure; if he finds the disease evaporate (as some physicians hold that it helps women in delivery) extremely to cry out or if it do but amuse his torments, let him roar aloud.”

It is not to be wondered at that, as a great sufferer and one who steeped in classic lore had the example of the ancients before him, he should have considered suicide. He reviews the subject pro and con and his final conclusion is heroic, beautiful.

Pliny says, there are three sorts of diseases, to escape any of which a man has a good title to destroy himself; the worst of which is the stone in the bladder, when the urine is suppressed. . . . For a desperate disease a desperate cure. . . . The stoicks say, that it is living according to nature in a wise man to take his leave of life even in the height of prosperity, if he do it opportunely, and in a fool to prolong it, though he be miserable, provided he be indigent of those things, which are reputed the necessities of human life. As I do not offend the law provided against thieves, when I embezzle my own money, and cut my own purse, nor that against incendiaries, when I burn my own wood; so am I not under the lash of those made against

murderers, for having deprived myself of my own life. Hegesius said, that as the condition of life did, so the condition of death ought to depend upon our own choice; and Diogenes meeting the philosopher Speusippus, so blown up with an inveterate dropsy that he was fain to be carried in a litter, and by him saluted with



Mademoiselle de Gournay, one of Montaigne's ardent admirers whom he called his "adopted daughter." She acted as one of the editors of an edition of his "Essays" published after his death.

(From the painting by Mathews, a copy of which appears in "Montaigne, L'Homme et L'Œuvre," by P. Bonnefon, Paris, 1893.)

the compliment of, I wish you good health; no health to thee, replied the other, who art content to live in such a condition. And in truth, not long after, Speusippus weary of so languishing an estate of life, found a means to die. But this does not pass without admitting a dispute: for many are of opinion, that we cannot quit this garrison of the world, without the express command of him, who has placed us in it: and that it appertains to God, who has placed us here, not for ourselves only, but for his glory, and the service of others, to dismiss

us when it shall best please him, and not for us to depart without his license: but we are not born for ourselves only, but for our country also, the laws of which require an account from us, upon the score of their own interest, and have an action of man-slaughter good against us. Or if these fail to take cognizance of the fact, we are punished in the other world, as deserters of our duty. There is more constancy in suffering the chain we are tied in, than in breaking it. . . . No accidents can make true virtue turn her back. (The Custom of the Isle of Cea.)

In analyzing pain and pleasure he says:

Philosophy, when she has said all she can refers us, at last, to the example of a wrestler, or a muleteer, in which sort of people we commonly observe much less apprehension of death, sense of pain, and other infirmities, and more constancy, than ever knowledge furnished any one withal, that was born without those infirmities, and of himself prepared by a natural habit. . . . When real infirmities fail us, knowledge lends us hers: that color, that complexion, portend some defluxion: this hot season threatens us with a fever: this breach in the life-line of your left hand, gives you notice of some near and dangerous indisposition, and at last, roundly attacks health itself; saying this spriteliness and vigor of youth, cannot continue in this posture, there must be blood taken, and the heat abated, let it run to your prejudice. Compare the life of a man subjected to such imaginations, to that of a laborer that suffers himself to be led by his natural appetite, measuring things only by the present sense, without knowledge, and without prognostic, that feels no pain or sickness, but when he is really tormented or sick: whereas the other has the stone in his soul, before he has it either in his reins or bladder: as if it were not time enough to suffer the evil when it shall come he must anticipate it by fancy, and run to meet it. What I say of physic, may generally serve in example for all other sciences: from thence is derived that ancient opinion of philosophers, that placed the sovereign good, in the discovery of the weakness of our judgment. My ignorance affords me as much occasion of hope, as of fear:

and having no other rule for my health, than that of the examples of others, and of events I see elsewhere upon the like occasion: I find of all sorts, and rely upon those which by comparison are most favorable to me. I receive health with open arms, free, full and entire, and by so much it is at present less ordinary, and more rare: so far am I from troubling its repose and sweetness, with the bitterness of a new and constrained manner of living. . . Would you have a man sound, would you have him regular, and in a steady and secure posture? Muffle him up in the shades of stupidity and sloth. We must be made beasts to be made wise, and hoodwinked before we are fit to be led. And if one shall tell me that the advantage of having a cold and stupid sense of pain and other evils, brings this disadvantage along with it, to render us consequently less sensible also in the fruition of good and pleasure; this is true; but the misery of our condition is such, that we have not so much to enjoy, as to avoid, and that the extremest pleasure does not affect us to the degree that a light grief does. . . I do not approve such an insensibility, as is neither possible, nor to be desired. I am very well content not to be sick; but if I am, I would know that I am so; and if a caustic be applied or incisions made in any part, I would feel them. In truth, whoever would take away the knowledge and sense of evil, would at the same time eradicate the sense of pleasure, and finally annihilate man himself. (The Apology.)

For himself, Montaigne, though confessing to an occasional "peevishness and crabbed humor" in a very sharp fit, has never arrived at "such a degree of despair as to bellow and make uproar." He was never beside himself with pain to the extent of not being able "to speak, think and give a rational answer as well as at any other time" but he could not do so as coldly and indifferently as when free from pain. "In the intervals from excessive torment when my ureters only languish without any

great dolor I presently, feel myself in my wonted state."

Speaking of colic: "It begins with me after a more sharp and severe manner than it uses to do with other men. My fits come so thick upon me that I am scarcely ever at ease" and he adds that he is better off than a thousand others who have no fever, no other disease but what they create for themselves for want of meditation. His description of the impaction and descent of a stone is classic. "Thou art seen to sweat with pain, to look pale and red, to tremble, to vomit well-nigh to blood, to suffer strange contortions and convulsions, by starts to let tears drop from thine eyes, to urine thick, black, and frightful water, or to have it suppressed by some sharp and craggy stone, that cruelly pricks and tears thee."

Montaigne believed that he derived his trouble from his father but does not understand how it was transmitted.

He died wonderfully tormented with a great stone in his bladder. He was never sensible of his disease till the 67th year of his age and before that had never felt any grudging or symptoms of it either in his loins, sides or any other part and had lived till then in a happy vigorous state of health. . . he continued seven years after in this disease and died a very painful death. . . I was born twenty-five years before his disease seized him and in the time of his most flourishing and healthful state of body, his third child in order of birth; where could his propensity to this malady lurk all that while. . . and how so concealed that till five and forty years after I did not begin to be sensible of it? . . . What a wonderful thing it is that the drop of seed from which we are produced should carry in itself the impressions, not only of the bodily form, but even of the thoughts and inclinations of our fathers. (Resemblance of Children to their Fathers.)

(To be continued.)

THE STORY OF A GREAT CONSULTATION

JEROME CARDAN GOES TO EDINBURGH

By CHARLES L. DANA, M.D.

NEW YORK, N. Y.

IN 1552, John Hamilton of Edinburgh, Archbishop of St. Andrews, brother of the Regent of Scotland, was in a very distressful state of mind and body. He was forty years old and for ten years he had been suffering from asthma. He had advised with his personal physician and had consulted the royal physicians at the Courts of Francis I and of Charles V of Spain. But he was getting worse. The disease he was told was due to a cold moist brain; a distillation of phlegm accumulating in that organ discharged itself through the wind-pipe into the lungs, causing cough, expectoration and dyspnœa—as well it might. The Archbishop decided to call to his help, Jerome Cardan, then professor of medicine at Pavia, and the most celebrated physician of Europe.

Cardan was fifty years old; he had a wife and three children, and very poor health. After forty years of hardship, antagonism and miscellaneous diseases, he had "arrived." He had a distinguished *clientele* and had been called to be physician to the Pope, and to the King of Denmark. He had declined these honors, and had just resigned his University position, partly for the following curious reason.

Cardan was a strong and not unhumorous believer in omens, and he was also fond of cats. One day his cat, a placid animal, despoiled the manuscript of Cardan's "Lectures on Medicine" then dragged it from the shelves to the floor but left untouched the manuscript of his "Book on Fate;" thereupon Cardan accepting the cat's judgment resigned from the University.

He was free to travel when Dr. William Cassinate the Archbishop's personal

doctor, sent him a letter some 10,000 words long, telling him that he was a great philosopher and begging him to go to Lyons and possibly to Paris where he could see and examine the Archbishop. Cassinate sent him 200 crowns and Cardan started for Lyons with five attendants on February 23, 1552. He travelled by way of Domo d'Ossillo, the Simplon Pass and Geneva to Lyons, the trip taking three weeks.

Neither the Archbishop nor his doctor were there, but Cardan was kept busy with entertainments and consultations for thirty-eight days, at the end of which time Dr. Cassinate arrived with a letter from the Archbishop, explaining that he was too ill and too busy to leave Edinburgh. Would not Cardan come to him? He sent him 300 crowns for his expenses, promised him 10 crowns a day for his trouble besides many honors, presents and "a great harvest of fame and esteem." "Farewell," he says, "most learned Cardanus and visit our Lares to find us not so much of Scythians as you perhaps suppose."

Cardan did not like English weather and did not want to go. He thought England immensely cold; that the grass was full of worms and the sky darkened with crows. But he finally accepted the commission and started for Paris on April 18th, travelling along the River Loire.

He was warmly received in Paris—"Lutetia" as the city was then called. He was entertained by the royal physicians, asked to be physician to the King and to give his services to various nobles of the day. He met in consultation the famous Jacobus Sylvius, teacher of Vesalius, who lectured on anatomy from the fragments of a dog,



CARDUUS hic pupugit subtilem vocem Magistrum:
 Ex herbis nomen das! BENEDICTUS erit.



*Ad Victoriam
Examine narratam facunda voce Galenū,
Trachitūque manu corpora; nectis erit.
Jm. Menestier.*

and had a way of giving his name to different parts of the body. Cardan describes him as a "merry old man of seventy, quite bald, quite little and full of jokes." "He was breathing animosity against Vesalius," says Cardan, "arising from I know not what cause, and he demanded indeed a most iniquitous thing, that I too should be his enemy."

The other consultant was Fernel, professor of medicine in the University and a most important figure in medical history. They had a little dinner party and discussed the case of the Archbishop from a clinical and Galenical point of view—giving their theory of his troubles, and laying out a course of treatment. Jerome listened but kept silent, and would venture no opinion. He says little about Paris except that the streets were very dirty and smelly, and that the population was very dense.

He seems to have been most impressed by the horn of a unicorn which a French doctor, Nicholas Legrand, also physician to the King, showed him in the Church of St. Dionysius. Cardan was not a gossipy traveler.

He now made his financial arrangement with the Archbishop's physician. A contract was drawn up and then destroyed as being an instrument unnecessary between a physician and an honorable patient—an interesting comment upon the medical ethics of the day. I do not know whether we now are up to such a standard. Cardan was to have his traveling expenses and ten gold crowns a day while attending the Archbishop.

Cardan and Cassinate traveled down the



*IOANNES FERNELIVS. DOCTOR MEDICVS
A. D. 1555. sculp.*

Seine to Rouen, with his five attendants, and part of the way with an escort of fourteen horse and fifteen footsoldiers. For France and Spain were then at war and

Cardan was a subject of the Emperor Charles V. They went to Boulogne, and Calais and thence to London, arriving on June 3, 1552. He stayed there three days and then started for Scotland.

Cardan's journey from London to Edinburgh took twenty-three days, and he arrived there on June 29.

Cardan stayed in Edinburgh till Sep-



Map showing Cardan's route from Milan to St. Andrews via Geneva, Lyons, Paris and London, returning through Ghent, Brussels, Louvain, Cologne, Strassburg, Basle, Berne, and Zurich.

tember 12, a period of ten and one-half weeks. I doubt if he had a very good time in this summer of 1552. Cardan's chief amusements at home were gambling, music and fishing, being most expert in the first. In fact, he paid his way through Padua by successful gambling on which subject he wrote a very good book advising against but instructing in the practice. Cardan did not like politics or theology, or massive attacks on food and drink, which were the standard diversions of the time. And Edinburgh was not as exciting then as it became a little later, when Mary became Queen and John Knox preached heaven and hell to a deserving population. However, he had many consultations with Scottish noblemen and one day he says he took in 19 gold crowns for two prescriptions.

For forty days after his arrival, Cardan did not begin his treatment. Being a prudent man he let the Archbishop's personal physician carry out again the treatment that had been approved by the Paris consultants, Sylvius and Fernel. But the Archbishop grew worse and finally Cardan explained his position. The Archbishop was very much annoyed at the delay, and told Cardan to apply at once his theory of the disease.

Now Cardan thought that the Archbishop's brain instead of being cold and humid, was hot and dry (perhaps we would now say hyperemic). This caused humors distilled in the stomach to rise to the brain. Also the materials of his food were turned into phlegm, which passed into the bronchial tubes, causing cough and expectoration and dyspnoea.

As a matter of fact, the bishop was a great eater and drinker, and took no exercise; he worked hard, kept irregular hours and was not shy with the ladies. Practically, Cardan put him on a Weir Mitchell rest cure. His program was somewhat as follows: He rose at 8 and took one day in eight, a shower-bath—the first ever taken in Scotland. Then he took a quiet walk in a shady place, chewing a little mastic, the sixteen-century substitute for pepsin gum. This caused expectoration and helped purge the brain.

At 9 o'clock he had breakfast, consisting of liver with a little ginger and some bread, with two ounces of white wine. After this he could have a little chicken and a little more wine. After breakfast he rested and amused himself. From 12 to 4, he was allowed to attend to his business, but was forbidden to write letters with his own hand. At 4 he went out for an hour's ride on horseback. He then, sitting or reclining, was allowed to give audience to those who wished to see him. He had supper at 7 o'clock which was like his breakfast, but opened with a sixteenth-century cocktail

consisting of a teaspoonful of pure honey. He was to go to bed at half past eight and secure 10 hours of continued sleep. As specialties in the diet, he was recommended turtle soup, snails, barley water and chicken broth.¹

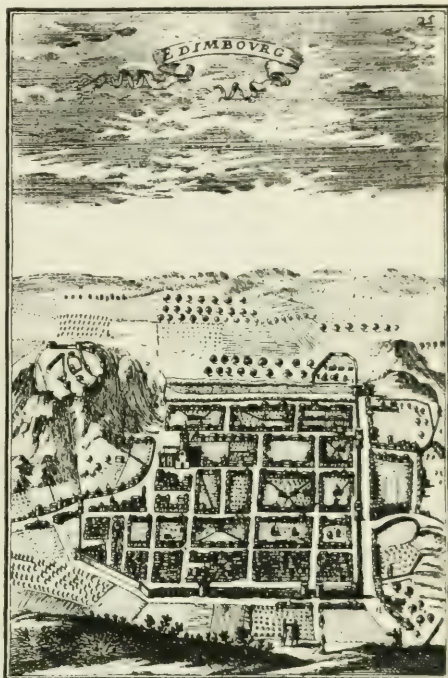
The above is a general outline of the treatment, but there were added many incidental details.

The chief object of Cardan's cure by medicine, was to reduce the unhealthy temperature of the brain. To do this, the head, he said, must be purged and before that there must be a purgation of the body. The head was purged in those days through the palate, the nose and the sutures of the skull. So Cardan blistered the coronal suture and poured a mixture of milk and water with 2 grains of elaterium through the nose, this being done on an empty stomach. Cardan did not believe in blood-letting nor in much medicine, and these were about the only medications that the patient received; but the attention to hygiene and diet was very strict and definite. Cardan limited the amount and character of the Archbishop's food, kept him away from the hot sun, forbade him to sleep on a feather bed and made him use a linen pillow. He gave him as a laxative preserved peaches and sugar of violets, avoiding purgatives. He made him drink a quart of milk a day. He was told to brush his head vigorously every morning with an ivory comb and to give his extremities a vigorous rubbing. He also advised him to buy a clock.

He allowed him only two meals a day—a breakfast and supper—and as a fattening agent, he gave him 2 ounces of sugar water, dissolved in the broth of a young pig. He gave him cold-natured food which would resist the attraction of the hot brain.

All this, it seems to me today, was very

good and modern treatment—no bleeding, no purgations, no polypharmacy. There must have been some sensible and practical masters of the medical art in those days. Personal hygiene, diet, exercise, cold baths, rest, sleep—what more could Sir James Mackenzie of London and St. Andrews have done for an Archbishop today?



Edinburgh in 1544.

At any rate, the Archbishop began speedily to improve and Cardan to get homesick. By September Cardan insisted on going home—and the Archbishop finally consented. He gave him 1800 gold crowns, much more money than was agreed upon, and many presents including a gold chain worth 125 crowns. He also promised to write to Cardan in two years telling of his

medicam noctem, et melius est exercere eam ter in sex diebus pro exemplo ita ut singulis duobus diebus semel quam bis in una die."

¹Incidentally, Cardan gave advice as to the Archbishop's social hygiene. "De venere, ubi contingat necessitas debet uti ea inter duos somnos, scilicet post

tella bis in die cum aqua decocta cum modico iuleb: rosati, abluendo a vino.

Evacuationes faciendæ doloribus instantibus præfenti medico relinquatur.

In principio dolore instanti super eius locum fiat emplastrum ex tribus partibus aquæ, quinta parti aceti & fursure frumenti q. l. simul decoctis, quod moderate calidum applicetur loco dolenti, donec vsque ad horas quinque vel lex amoveatur.

Item fiat emplastrum ex tribus partibus aquæ & quartæ parti aceti, & farina lupinorum q. s. simul decoctis quod moderate calidum dolenti loco applicetur, nec vsque ad horas quinque vel lex amoveatur.

Duo supra scripta emplastra consueverunt poterit dolorem remittere duabus vel tribus applicationibus. Alia tamen fieri possent & primo ex plantagine lenibus decoctis pane & oleo rosato in hunc modum.

℞. Foliorum plantaginis.

Lenitum bene decoctum in aqua.

Medullæ panis. añ. q. l.

Contundantur simul, & cum oleo rosato fiat emplastrum lene quod loco dolenti similiter applicetur; vel ex sapa seu vino decocto, oleo rosato, fiat vnguentum molle loco similiter dolenti applicandum: verò magna sentiretur in loco dolente caliditas ex farina hordei cum oleo rosato & aliquo ex succis frigidis vt sunt succus semperuiui solatri, portulacæ, endiuicæ, Poligani, Iulquiani, Papaueris rosarum, fiat emplastrum quod loco dolenti similiter applicetur, tepidum, aut frigidum, vel ex farina hordeieum mucilaginis pilulij q. s. fiat emplastrum vel ex oleo rosato & cera cum aliquo ex succis dictis fiat vnguentum molle, loco similiter dolenti applicandum. Potentiora tamen & vitiosa ad remittendum d.orem sunt primo duo emplastra scripta quæ continentur donec dolor satis remissus sit, quo tempore inungatur locus ex limimento infra scripto.

℞. Pinguedinis vituli ʒ. iij.

Salis vitæ ʒ. ij.

Olei communis ʒ. j.

Misce, & fiat lenimentum molle, dolore vero quasi ex toto remoto inungatur locus curæ infra scriptæ decoctione.

℞. Pinguidinis tauri ʒ. iij.

Salis vitæ ʒ. ij.

Olei Antq. ʒ. i. ʒ.

Misce, & fiat lenimentum; & si non inueniretur Pinguedo Tauri capiat pinguedo bouis.



CONSILIUM LII.

Ephemeris siue vita ratio pro Reuerendissimo D. Archiepiscopo Sancti Andree D. D. Ioanne Amuliano.

Quamuis ex generali consilio latissimum C. Tunc esse crediderim idque minus aboloratus sit egregius tuus medicus Galenatus, ne tamen in vilo doctæ tibi

videat, quandoquidem ex præscripto in partem ledere cogor, præca hæc in ordinem diuinum in grauiam tuam memini beneficiorum tuorum, & quod principum præcepta sunt, redegi. Incutiam ab hora quæ aspergitur luctendo, quod in illate sit gratia exempli hora semra, scilicet nocte proprio a nocte media: primum explorandum an sufficienter dormient id est tribus habetur indicium: primum est a debito horarum spacio, quod Galenus testis de tertia sanare (cap. 5.) horarum exultant nouem. Nunc omnis omnibus d. iputatoribus solum necessaria & clarissima & absque dubitatione in medium adducam. Quod iuxta rationem repositæ, eam postmodum reddam. Igitur vt ad propositum reuertar: leuandum signum perfecti somni est capitis leuitas & alacritas. Cum enim somnus fiat ad reparandum spiritum animalæ quæ in cerebro continetur manifestum est quod spiritus animalis reparato comode somnus cessat. Tunc verò necesse est vt caput alacre ac leue sit, & sensus ac mens negata reparatis spiritibus. Quod si leues homo se habeat indicium est etiam si horis debitis dormient non satisfecit somnus. Tertium indicium est a ventriculi coctione: nam cum ventriculum concoxille lenient indicio est dormisse satis. Hæc enim est secunda vultus somni, scilicet concoctio cibi in ventriculo. Cum igitur nondum natura huiem propriis affectus est, si antea cesset somnus non satisfecit. Porro quoniam pacto concoxille se sentiet in ventriculo? erit cum neque grauitas vlla in ventriculo nec ructus aliquis sed quali vbi sit ventriculus penitus ignoret, leuem se sentiat. Quod si vel caput adhuc graue, vel ventriculum non concoxille animaduertat, non surgat omnino. Sed vel dormiat vel quiescat saltem. Nihil enim proficere poterit surgendo: nam si exerceatur, pessimum est, cum crudus adhuc sit cibus in ventriculo, hoc enim nihil est nocuum, vt in libro de cibis boni & mali succi Galen docet. Nec si quiescat quicquam proficiet. Nihil autem melius esse somno intelligat nec excogitari posse. Nam cum tabus maxime inleat, bona coctione ne humor ille crassus abundet, & vt possit impingui: somnus si quod aliud coctiones iuuat, vt quatuor Aphorismorum (Aphor. 7) Galen. docet, ob id ad instaurandum corpus quicquam melius somno esse potest, & ad minuendam wateriam quæ morbum facit. Hæc igitur duo quæ à coctione perfecta reparantur somnus exhibet, vt nihil melius illius diuinitate esse possit nec excogitari: Horum adduco plures hac in causa auctoritates, quoniam cetera sunt innumera, & neque aliud Galen. dicat, primum quod somno vel hæc sola causa proluxiori esset indulgendum. Secunda est ceteris corporis humiditatio vt etiam habetur quinto de tertia sanitate (cap. 4. in principio). Manifestum est autem quod habitus hic lenis proficiat est, seu ad macilentiam respicias, seu ad humiditatem & crudi abundantiam. Tertia est quod omnia membra per somnum interiora sua reparant, dico pulmo & cor, vt habet.

D d s betur.

condition, which he did. Cardan had the follow-up system of today.

Before Cardan left his patient, he prepared and wrote out his *Consilium Medicale* in which he gave his theory of the disease and provided for every detail of treatment. This made a document twenty folio pages long.

It is possible that the Archbishop asked for something simpler. At any rate Cardan wrote out a shorter outline of treatment of seven folio pages which he called an *Ephemeris*. Both *Consilia* are printed in Cardan's "Opera Omnia" which appeared ten years before his death, 1563.

ABSTRACT OF CARDAN'S EPHEMERIS OR RULE OF LIFE FOR THE MOST REVEREND D.

ARCHBISHOP OF ST. ANDREWS D.D.,

JOHN HAMILTON

Although I believe that my general counsel was satisfactory to you and your distinguished physician Casanati, nevertheless lest there should be anything lacking when I am away, I have arranged these few rules in recognition of your kindness and because the requests of princes are commands.

First: In the first place, after you have arisen, the question if you have good sleep must be considered according to the three rules of Galen, viz:

1, It must be sufficient. And "this," says Galen, "should be 9 hours;"

2, It should be sound. The sign of sound sleep is clearness and alacrity of the head on awaking [*levitas et alacritas capitis*].

3, One should awaken without symptoms of stomach disturbance (*cum ventriculorum concoxisset indicio est dormisse satis*).

Having argued for a column on the need of healthy sleep, he says:

Therefore to repeat, nothing is better than sleep to him who would rest his brain and reconstruct himself, as Galen taught "*primo de symptomatum causis*." (Cap. 8.)

Second: Friction—massage.

When sufficient rest and sleep are obtained, let yourself be rubbed, using two brushes.

The Galenic order of rubbing, is first the thighs, then the arms, breast and stomach. The details of this rubbing are gone into, "because," says Cardan, "of the vehement utility of the matter" (*propter vehementem utilitatem rei*).

Third: After the friction, there should be a movement of the bowels, if possible, spontaneously; if not, using an enema containing the juice of mercurialis or boiled spinach with oil of rose, or violets, or honey.

Cardan discourses long on the importance of having spontaneous movements (*lenitas alvi*), and quotes Avenzoar as having shown that the habit conferred immunity against many diseases.

Fourth: Let him drink $\bar{5}$ i to $\bar{5}$ ii of warm water distilled with the root of althea and leaves of portulaca and plantain, adding a little sugar.

Then let him comb his hair gently with an ivory comb.

Fifth: Exercise in the open air every day freely, shoot with bow, take walks, even read aloud in a high voice, nevertheless with suavity (*alta voce cum suavitate tamen*.)

Let the exercise be a pleasurable one (*exercitatio cum voluptate*) and done in suitable garments.

Sixth: It is of the greatest importance that the head be bathed with hot water every eighth day, then suddenly pour on about 5 pounds of cold water and rub with a warm towel.

He adds that he should not be afraid, for after a time the head will get used to it and be strengthened (*successu temporis confirmabit cerebrum*).

Seventh: It is of the greatest importance that every morning when the patient goes out of the house, he should chew 2 grains of fresh white soft mastic. This will cause much expectoration, and thereby help to purge the brain.

After these special points, Cardan goes on to prescribe exactly a schedule of his daily life regarding his meals, his exercise, rest, work. He goes into many points particularly about food—for Cardan was

something of a cook himself, and a dietitian. He tells him how to take ass's milk and how to drink water (*Modus capiendi aquam*).

At the end of his *Consilium* as remedies for the asthmatic seizures, he suggests clysters of oxgall and salt. Also, when the seizure begins, he advises the patient to tickle his throat with a feather until he vomits. Then later, if needed, bind his arms and thighs with rope for 15 minutes.



Portrait of Edward VI.

From an engraving of a portrait hung in Kensington

He ends his *Ephemeris* with another admonition about sleep:

Let him be quiet in bed ten hours and sleep in as long as possible.

Let the decubitus be prone and in a cool room, use a linen pillow and wear a light solid nightgown. Have a fire in the cubicle by day, but not by night and let it be a wood fire.

These, therefore, are the general rules for one day.

Cardan left Edinburgh in September and spent some weeks in London as a guest of the Court. Edward VI, a youth of

fifteen, had been for six years the king. Those who have read or seen Mark Twain's "The Prince and the Pauper" will recall what a prodigy of learning and cleverness the young king was assumed to be. Cardan found him all that the novelist pictures.

I was told that he had already mastered seven languages. In his own language, French, and Latin, he was perfect. He was not ignorant of dialectics, and in all things teachable. When I had speech with him he was fifteen years old, and he asked me (speaking Latin with as much polish and promptitude as I could use myself)—

"What is there in those rare books of yours on the Variety of Things?" For I was obtaining leave to dedicate them to him.

Then I: "In the first chapter I show the cause of comets, long sought for in vain."

"What is it?" says he.

"The concourse," I say, "of the light of the planets."

But the king: "How it is, since the motions of those stars are different, that it is not dissipated, or does not move in accordance with their motion?"

But I: "It does so move, only much faster than they, on account of the difference of aspect, as the sun shining through a crystal makes a rainbow on a wall. A very slight movement of the crystal makes a great change in the rainbow's place."

But the king: "And how can that be done when there is no *subjectum*, for to the rainbow the *subjectum* is the wall."

Then I: "It occurs as in the milky way, and by the reflection of lights. When many candles are lighted near one another they produce between themselves a certain lucid and white medium. Therefore, *ex ungue leonem*, as they say."

Having given this very candid illustration of the quickness of the king's intelligence, Cardan goes on immediately in a strain of genuine and hearty admiration:

This boy filled with the highest expectation every good and learned man, on account of his ingenuity and suavity of manners . . . When a royal gravity was called for, you would think it was an old man you saw, but he was

bland and companionable as became his years. He played upon the lyre, took concern for public affairs, was liberal of mind, and in these respects emulated his father, who, while he studied to be too good, managed to seem bad. But the son was free from all suspicion of crime, his disposition was completely trained to philosophic studies.

The impression made upon Cardan by the young king was, indeed, very great. He says: "The boy of so much wit and so much promise was, by a great miracle, being educated to a comprehension of the sum of human things. I do not here adorn the truth . . . And there was the mark in his face of death that was to come too soon. Otherwise he was comely, because of his age and of his parents, who had both been handsome."

Cardan was asked to Court by the nobles, not to treat the boy, but to find out through his astrology how long the king would live. Jerome Cardan seemed to love the boy, and he saw enough of the Court, dominated by selfish, ambitious and unscrupulous men, to fear for his future. But he fitted out a horoscope giving him about 20 years. Edward died the following spring—some say poisoned.

The stranger, of course, carried away with him from England certain impressions of a people among whom he had for some months been sojourning. Of their emotions he reports:

It is worth consideration, that the English care little or not at all for death. With kisses and salutations parents part; the dying say that they depart into immortal life, that they shall there await those left behind; and exhort the others to retain them in their memory. Cheerfully, without blenching, without tottering, they bear with constancy the final doom. They surely merit pity who with such alacrity meet death, and have no pity on themselves.

In figure they are much like the Italians; they are white—whiter than we are, not so ruddy; and they are broad-chested. There are some among them of great stature; urbane and

friendly to the stranger, but they are quickly angered and are in that state to be dreaded. They are strong in war, but they want caution; greedy enough after food and drink, but therein they do not equal the Germans. They are rather prone than prompt to lust. There are great

HIERONIMI
C. CARDANI MEDICI MEDIOLA
NENSIS, PRACTICA ARITH-
metice, & Menfurandi singularis. In qua
que preter alias continentur, versa
pagina demonstrabit.



An unusual portrait of Cardan, appearing on the title-page of his "Practica, Arithmetice," Milan, 1539.

intellects among them—witness Duns Scotus and Suiseth, who rank second to none. In dress they are like Italians; for they are glad to boast themselves most nearly allied to them, and therefore study to imitate as much as possible their manner and their clothes. And yet, even in form, they are more like the Germans, the French, and the Spaniards.

When I looked among those groups of English sitting together, I completely thought myself to be among Italians; they were alike, as I said, in figure, manners, dress, gesture, colour, but when they opened their mouths I could not understand so much as a word, and wondered

at them as if they were my countrymen gone mad and raving. For they inflect the tongue upon the palate, twist words in the mouth and maintain a sort of gnashing with the teeth.

While in London Cardan received an invitation to go to the Court of France, as royal physician. But he declined. In fact, he had now received so much money that he was afraid to travel in the war-disturbed



region of France. So he started back by way of Belgium, Holland, and the Rhine.

When Cardan left London for home, he planned to do a little visiting. He was a great mathematician as well as doctor, and was really responsible for introducing the great art of algebra into the schools of Europe. (Doctors were often mathematicians in those days. When Sancho Panza fell off his mule, he cried out, "Send for an Algebraist.") Now there was a celebrated doctor and mathematician at the University of Louvain, named Gemma Frisius. So Cardan crossing at Dover, went to Ghent

and Brussels, and then to Louvain where he spent a few days with Frisius.

Thence he went to Cologne, and up the Rhine to Strassburg and stopped at Basle where he was entertained and given a mule worth 100 crowns. He pursued his way to Berne and Zurich where he visited Conrad Gesner. Conrad Gesner was a physician, a botanist, a zoologist and one of the most industrious and learned men of all time. He published in twenty volumes a catalogue of all the writers who had ever lived. He was a friend and helper of all the learned men of his century.

Cardan finally left Zurich, went into Italy, sailed across Lake Como and came into Milan on January 3, 1553, having been gone 310 days.

Cardan's autobiography "De Vita Propria" gives direct insight into the character of this physician whose reputation travelled from Italy to England. The book is quite short, very objective, unsparing in its self-analysis and full of curious details of the author's personality and career. It has been called one of the three great autobiographies in literature; the others being Caesar's "Annals" and Rousseau's "Confessions."

Cardan was sensitive, affectionate, introspective, imaginative, superstitious, humorous, inclined to ideas of self-reproach with high ambition and hypomanic industry. Concerning his own weaknesses, he admits he was always inclined to sensuous pleasures. Of these, he adds, his worst and greatest was his love of music. In his book he becomes very melancholy over this defect in his morals. He was not of the woman-pursuing type, but he wrote some advice to his sons about love.

Love is a pleasant torture, a noble folly and a madness of a unique kind.

It is the fruit of youth, the crime of age. To love and to be wise belongs to the Gods alone.

As to Cardan's standing in retrospect.



CONRADVS GESNERVS,
Med. D. et Prof. Phil. Tigur.

nat. 1516.

denat. 1565.

Est. Luc. Haid excud. Aug. Vind.

The great personalities in medicine in his century were Vesalius, Paracelsus and Paré men who broke away from the past and contributed to human progress. Cardan represents the learned medical man of the sixteenth century. His only original and lasting contribution to science was to mathematics and the great art of algebra. His

career and writings reflect what was best in the art, practice, learning and ethics of the day. In his art he was not behind later centuries. In his ethics he was abreast even of those of today. As a type of his time, he is an accessible mirror of the medicine, learning and life in the University world of the sixteenth century.

LINES TO A SKELETON

This is the usual title applied to the following poem, although the original title under which it was published in the *European Magazine and London Review* for 1816, was "A Fragment Found in a Skeleton Case." It was signed solely with the initial V. There has been much dispute as to who was the author but it is now regarded as definitely proven that it was written by Miss Anna Jane Vardill, the author of

several other poetical works. She was the daughter of the Reverend John Vardill, who was born in the American Colonies but, being a Tory, went over to England at the outbreak of the Revolution. Miss Vardill was born in London, married James Niven and died in Yorkshire in 1852.

We owe our information to the kindness of Mr. William Abbatt of Tarrytown, who sent it with a copy of the poem to the ANNALS.

Behold this ruin! 'Twas a skull
Once of ethereal spirit full;
This narrow cell was Life's retreat,
This space was Thought's mysterious seat.
What beauteous visions filled this spot,
What dreams of pleasure, long forgot!
Nor hope, nor love, nor joy, nor fear,
Has left one trace of record here.

Beneath this mouldering canopy
Once shone the bright and busy eye;
But, start not at the dismal void,
If social love that eye employed,
If with no lawless fire it gleamed,
But through the dews of kindness beamed,
That eye shall be forever bright,
When stars and suns are sunk in night.

Within this hollow cavern hung
The ready, swift and tuneful tongue;
If falsehood's honey it disdained,
And where it could not praise, was chained;
If bold in Virtue's cause it spoke,
Yet gentle concord never broke
This silent tongue shall plead for thee,
When time unveils eternity.

Say, did these fingers delve the mine?
Or with its envied rubies shine?
To hew the rock, or wear the gem
Can little now avail to them.
But if the page of truth they sought,
Or comfort to the mourner brought,
These hands a richer meed shall claim
Than all that wait on Wealth or Fame.

Avails it, whether bare or shod,
These feet the paths of duty trod?
If from the bowers of Ease they fled
To seek Affliction's humble shed;
If Grandeur's guilty bribe they spurned,
And home to Virtue's cot returned,
These feet with angel's wings shall vie,
And tread the palace of the sky.

AN UNRECOGNIZED ANGLO-SAXON MEDICAL TEXT

By CHARLES AND DOROTHEA SINGER

OXFORD, ENGLAND

INTRODUCTION

OUR knowledge of the earliest vernacular medical literature of Western Europe depends almost entirely on the Anglo-Saxon writings. Of the documents of this literature that have come down to us, few, however, were written before the Norman Conquest.¹

The Normans were widespread over Europe in the eleventh century, and about the period of their invasion of England they established themselves also in Sicily and southern Italy, and in 1076 became masters of Salerno. It is thus not surprising that the learning of the medical school of Salerno soon penetrated to the shores of Britain, and although the inscription of the famous poem, the "Regimen Sanitatis Salerni," to the King of England, as well as its ascription to the year 1101, are doubt-

¹ A list of the published Early English texts is given by K. Sudhoff in his "Die gedruckten mittelalterlichen medizinischen Texte in germanischen Sprachen." (*Arch. f. Gesch. d. Med.*, Leipzig, 1910, Vol. iii, p. 297.) Sudhoff gives nineteen Anglo-Saxon texts of which perhaps nine may be regarded as before 1100 A.D. Only one or two of these, however, can be before 1066.

² The "Compendium Medicinæ," though compiled by an Anglo-Saxon speaking writer, is in Latin. The text exists in only one MS., viz., St. John's College, Oxford 17, and has been reprinted by one of the writers. See Charles Singer: "A Review of the Medical Literature of the Dark Ages, with a New Text of about 1110," in *Proc. Roy. Soc.*, (Sect. of Hist. of Med.) 1917, Vol. x, pp. 107-160, and Charles Singer: "A Medical Compendium of the First Half of the Twelfth Century," *Bull. Soc. Med. Hist.*, Chicago, Jan., 1917. The text printed in these works borrows from the Salernitan Giovanni Monaco.

less due to later errors, they are yet the echoes of a real cultural movement. At any rate, in the early years of the twelfth century English medical writers were borrowing extensively from Salernitan sources. This is especially the case with the two latest medical compositions by Anglo-Saxon writers, one of which, for want of a title, we may call the "Compendium Medicinæ" and the other, the better known, "Peri Didaxeon." The MS. of the "Compendium," dating from about the year 1110,² has borrowed whole passages from the Salernitan Giovanni Monaco (*floruit circa 1080*),³ while the slightly later "Peri Didaxeon"⁴ is substantially a translation of a work of the Salernitan Petrocello (*floruit 1050*).⁵ The short text that we here discuss has perhaps similar Salernitan relationships, but the MS. in which it is found is about a century earlier than that of either the "Compendium" or the "Peri Didaxeon."

The text in question is to be found in the

³ Giovanni Monaco was a pupil of Constantine the African (died 1087). A work by Giovanni is printed by S. de Renzi: "Collectio Salernitana," Naples, 5 vols, 1852-56, Vol. ii, p. 144.

⁴ The "Peri Didaxeon" (περί διδάξεων = of the schools of medicine) exists in only one MS., viz., British Museum, Harley 6258 fo. 83v to 98r. The work is printed by O. Cockayne: "Leechdoms, Wortcunning and Star Craft in Early England," London, 3 vols, 1864-66. Vol. iii, p. 82. The text of the "Peri Didaxeon" was restudied by Max Löwenack in the "Erlanger Beiträge zur englischen Philologie," No. XII, Erlangen, 1896. The conclusions of Löwenack are summarized by J. F. Payne: "English Medicine in the Anglo-Saxon Times," Oxford, 1894. The MS. of the "Peri Didaxeon" is of the early twelfth century.

⁵ The work of Petrocello is printed by S. de Renzi, loc. cit., Vol. iv, p. 185.

Bodleian Library at Oxford in the oldest volume of the collection of Elias Ashmole,⁶ a group of books that is of unique value for the study of mediæval medicine. It is possible to date the MS. accurately on internal evidence. It is all in the same handwriting, contains numerous astronomical

partly in Latin and partly in Anglo-Saxon, is known as the "Handboec of Byrhtferð."⁷ This author's name is several times mentioned in the text and at one place we are told that it is his work. The title *handboec* occurs in another passage where we read:

"We gesetton on þissum encheiridion

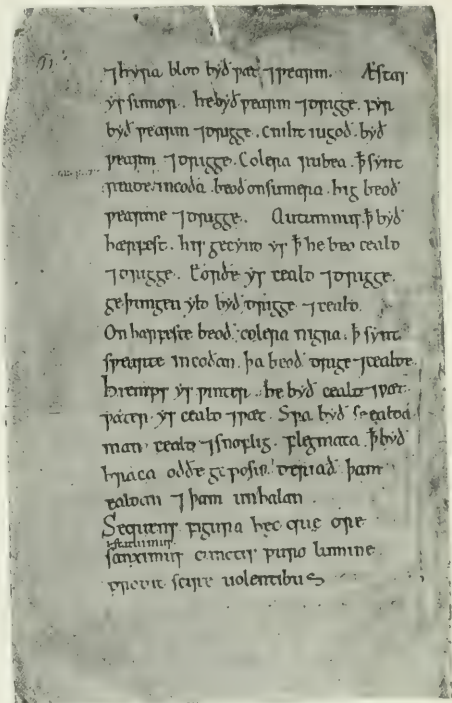
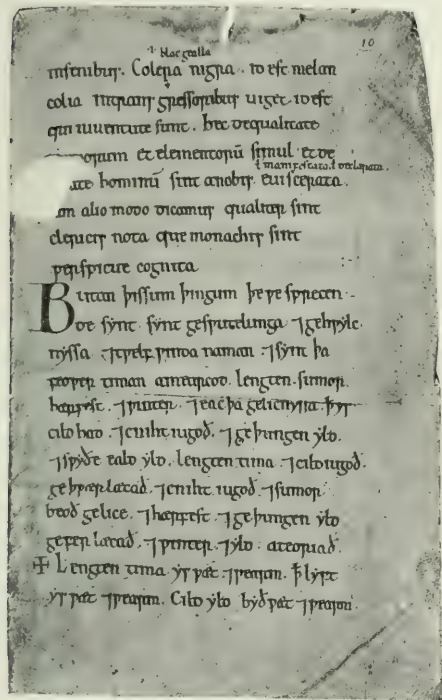


Fig. 1. Pages 10 and 11 of Byrhtferð's Handboec. From the MS. in the Bodleian Library, Ashmole 328, written in the year 1011.

data and, by a calculation therefrom that we need not here reproduce, the actual year in which it was written has been determined as 1011.⁷ Our MS., which is

paet ys manualis on lyden handboec on englisc" which may be translated:

"We set down this encheiridion, that is *manual* in Latin and *handbook* in English."⁹

maties. Following on this are three tractates on "The Ages of the World," "The Loosing of Satan," and "The Seven Deadly Sins."

⁹ Page 133. The Handboec is not numbered in folios, as is usual with MSS., but in pages like a modern book.

⁶ The press mark is Ashmole, 328.

⁷ K. M. Klassen: "Ueber das Leben und die Schriften Byrhtferðs," Dresden, 1896, p. 18.

⁸ The main part of the Handboec is occupied by a scientific treatise on the calendar and on mathe-

The Greek word *encheiridion* is commonly encountered in Anglo-Saxon works and is used to describe a treatise of any kind.¹⁰ It does not seem especially confined to short works and thus resembles the modern German *Handbuch*. We find the word in the writings of Bede, King Alfred and Alcuin.

Of Byrhtferð little is known. He was a monk of Ramsey in Huntingdonshire and he lived during the reign of Aethelred (reigned 979-1016). The literary output of Byrhtferð included commentaries on the writings of Bede. One of these commentaries is on the "De temporum ratione,"¹¹ a work dealing mainly with the divisions of time as deduced from astronomical data and largely occupied with the fixation, by such means, of the Church festivals. The *Handboc* of Byrhtferð contains very similar material and includes sections on the concurrents,

the regulares, the epacts, the qualities of the twelve months, the moon, the sun, the stars and the seasons, the calculation of Easter, the "secrets of numbers" and the "ages of the world" of a like character to the material on these subjects encountered in various works of Bede.¹² With this material as a whole we are not here concerned, except to point out that in these early writings *medicine* forms but a part of *physica*, that is of natural knowledge in general; and that the history of early as of later medicine can only be truly presented as a part of the general philosophical system in which it arose.

The medical text that we are discussing opens in Latin and is followed by a version in Anglo-Saxon. After the Anglo-Saxon portion there is, or rather *was*, a diagram illustrating the text. The page containing this diagram has been torn out and only a frag-

¹⁰ The word *encheiridion* occurs however in the "Etymologie" of Isidore (iv, 11) as a term for a knife or surgical instrument.

¹¹ Besides the *Handboc* and the commentary on Bede's "De temporum ratione," Byrhtferð wrote a commentary on Bede's "De natura rerum," two works entitled "De principiis mathematicis" and "De institutione monachorum," together with a small unpublished "Præmium super Bedam de temporibus." This last is in MS., St. John's College, Oxford, 17, fo. 12v-13r.

¹² We here give a bibliography of the more important publications in which there is mention of Byrhtferð.

John Bale: "Scriptorum illustrium Majoris Britanniae quam nunc Angliam et Scotiam vocant Catalogus," Basle, 1559, cent. ii, cap. 35, p. 238 (not in the first edition, Ipswich, 1548).

John Pits: "Relationum historicarum de rebus anglieis," Paris, 1619, Vol. i, p. 177-8.

G. Sommer: "Dictionarium saxonico-latino-anglicum," Oxford, 1659.

Jean Mabillon: "Acta sanctorum ordinis Benedicti," Paris, 1668-1705, Vol. v, p. 715.

C. D. Du Cange: "Glossarium ad scriptores mediæ et infimæ latinitatis," Paris, 1678, in course of "Index Auctorum," p. 45.

Henry Wharton: "Anglia sacra," London, 1691, Vol. ii, preface, p. 9.

Humphrey Wanley in G. Hickes: "Linguarum vett. septentrionalium Thesaurus," Oxford, 1705, p. 103.

J. Leland (lived 1506-52): "De scriptoribus britannicis," ed. Ant. Hall, Oxford, 1709, cap. 136.

J. Leland: "De rebus britannicis Collectanea," edited by Hearne, Oxford, 1715, Vol. iv., p. 23 (describing a MS. in Peterhouse, Cambridge), and Vol. iv., p. 97 (describing an ancient MS. shown to him by Talbot).

T. Hearne: in "Glossary" attached to Peter Langtoft's "Chronicle," Oxford, 1725, Vol. ii, pp. 661, 670.

J. G. ab Eckhart: "Commentarii de rebus Franciæ orientalis et episcopatus, wirceburgensis," Wurtzburg, 1729.

J. A. Fabricius: "Bibliotheca latina mediæ et infimæ Latinitatis," Hamburg, 1734, Tom. 2 (continuous pagination with Tom. 1), pp. 500, 763, 764.

T. Tanner: "Bibliotheca britannico-hibernica," London, 1758, pp. 30 and 125.

F. Kluge in "Anglia, Zeitschrift für englische Philologie, von R. Paul Wülker, herausgegeben," Halle, 1885, Vol. viii, pp. 298-337.

Karl Moritz Klassen: "Ueber das Leben und die Schriften Byrhtferðs," Dresden, 1896.

Frank Clifton Smith: "Die Sprache der *Handboc* Byrhtferðs und des Brief-Fragmentes eines bekannten Verfassers," Leipzig, 1905.

ment remains. We are fortunate in being able to replace the substance of the lost page from another source, for the diagram was copied by an English scribe early in the twelfth century and has survived in another MS.¹³ The diagram that has thus by a lucky chance come down to us provides interesting illustration of how, among the Anglo-Saxons, Greek science which in its Eastern home had already been modified by a peculiar type of biblical exegesis, was on its arrival on these shores again modified by the Teutonic tradition. (Fig. 2.)

The system encountered in the *Handboc* of writing paragraphs alternately in the vernacular and in Latin is extremely common in Anglo-Saxon literature. Sometimes the Latin continues the thought of the Anglo-Saxon, and verses are actually in existence with the lines divided into two parts, the former half being Anglo-Saxon, the latter Latin, with the same alliteration running through the line.¹⁴ In other cases the Anglo-Saxon paragraphs represent a version of the Latin, and then it may be hard to tell which is the original. In the latest period of Anglo-Saxon writing, the twelfth century, it is probable that the Latin was intended to assist the reader in understanding the Anglo-Saxon, since the latter language had now been replaced by Middle English as a vernacular and was preserved only as a literary medium. It is less easy to explain the alternation of the two languages in the earlier MSS. In some cases it may have been used for teaching Latin, in others to guard the reader against trans-

lators' errors, in yet others the result may have been produced by an unintelligent scribe copying a Latin original that had been glossed in Anglo-Saxon. In the text before us there can, we think, be no doubt that Byrhtferð had before him a Latin MS. from which he extracted a paragraph and then translated it into Anglo-Saxon.

THE TEXT

MS. Ashmole 328

Exceptis his rebus de quibus	page
<i>id est locuti</i>	<i>id est tacnunga</i>
orsi sumus sunt significationes sunt	
<i>id est gehwylcnyssa</i>	<i>id est grece</i>
qualitantes sunt duo denorum nomina	
onomata	
uenturum sunt loca bisbinorum. tempo-	page
rum ueris. aestatis. autumn. et hiemis	
et qualitantes. uel aetates hominum.	
<i>id est pueritia adolescentia iuuentus et</i>	
senectus ✚ Uer et pueritia consenti-	
unt. Adolescentia et estas. assimilantur.	
autumnus et iuuentus. consociantur.	
Hiems et senectus deficiuntur ✚ Uer	
humidum et calidum. Aer humidus et	
calidus. pueritia. humidia et calida.	
Sanguis qui in pueris pollet. humidus	
et calidus est ✚ Ætas calida. et sicca.	
ignis calidus et siccus. Adollescencia calida	
<i>scilicet in estate</i>	
et sicca. Colera rubia crescunt in iuue-	
nibus ¹⁵ calida et sicca ✚ Autumnus siccus	
et frigidus. Terra sicca et frigida. Iu-	
uentus sicca et frigida. Colera nigra	
in autumnno crescunt sicca et frigida sunt.	
✚ Hiemps frigidus et humidus. Aqua	
frigida et humida flegmata dominantur	
<i>id est blac gealla</i>	
in senibus. Colera nigra. <i>id est melan</i>	page
colia intrans gressoribus uiget. <i>id est</i>	
qui iuuentute sunt. Hec de qualitate	
temporum et elementorum simul et de	
<i>uel manifestata uel declarata.</i>	

¹³ MS. 17 in the Library of St. John's College, Oxford. The proof that this MS. really contains a copy of the missing page of Byrhtferð is given in an article by Charles and Dorothea Singer "Byrhtferð's Diagram" in the *Bodleian Quarterly Record*, Vol. ii, p. 47, Oxford, 1917.

¹⁴ This curious freak occurs in the eleven terminal lines of the poem known as "The Phœnix," attributed to Cynewulf, which forms a part of the so-called Exeter book, a MS. presented to Exeter Cathedral by Archbishop Leofric about 1071 A.D.

¹⁵ The scribe should here have written *adolescentibus* instead of *iuuenibus*. The gloss is correct, the error being in the text alone.

ætate hominum sint a nobis. euiscerata
iam alio modo dicamus qualiter sint
clericis nota que monachis sint
perspicue cognita.

Butan þissum þingum þe we sprecen-
de synt. synt gespulelunga 7 gehwyle-
nyssa. 7 twelf winda naman. 7 synt þa
feower timan amearcod. lengten. sumor.
hærfest. 7 winter. 7 eac þa gelicnyssa. þæt ys.
cildhad. 7 cnihtiugod. 7 geþungen yld.
7 swyðe eald yld. lengten tima. 7 cildiugod
geþwærlacað. 7 cnihtiugod. 7 sumor
beoð gelice. 7 hærfest. 7 geþungen yld
geferlæcað. 7 winter. 7 yld. ateoriað.

✚ Lengten tima ys wæt. 7 wearm. þæt lyft
ys wæt 7 wearm. Cild yld byð wæt 7 wearm.

11 7 hyra blod byð wæt 7 wearm. Æstas
ys sumor. he byð wearm 7 drigge. fyr
byð wearm 7 drigge. cnihtiugod. byð
wearm 7 drigge. Colera rubea. þæt synt
reade incoða. beoð onsumera hig beoð
wearme 7 drigge. Autumnus þæt byð
hærfest. his gecynd ys þæt he beo ceald
7 drigge. Eorðe ys ceald 7 drigge.
geþungen yld byð drigge 7 ceald.
On hærfeste beoð colera nigra. þæt synt
swearte incoðan. þa beoð drige 7 cealde.
Hiemps ys winter he byð ceald 7 wæt.
water ys ceald 7 wæt. Swa byð se ealda
man ceald 7 snoflig. flegmata. þæt byð
hraca oððe geposu. deriað þam
ealdan þam unhalan.

Sequens figura haec quae ore
id est statuimus
sanximus cunctis puro lumine
profit scire uolentibus.

The substance of this passage was the

¹⁶ The text occurs in a marginal note in the Treves MS., No. 40, fo. 30 r. This note is substantially contemporary with the MS. (late tenth century) on which it is written. The MS. itself is of interest as containing much old High German magic, and has been discussed by E. Schroeder, *Zeit. f. deutsche Altertumswissenschaft*, 1910, p. 169 and 306. The medical marginalia are printed by C. Ferekel in the *Arch. f. Gesch. d. Med.*, 1914, Vol. VII, p. 129. Our particular text is the latter part of the "Inventiones

common basis of the medical system of the Dark Ages.

The Latin version of the text was known in Northern Europe even before the time of Byrhtferð, for it is found in a Rhenish MS. of the latter part of the tenth century.¹⁶ It is almost verbally identical with a passage in a pseudonymous work known as the "Isagoge Sorani Ephesii,"¹⁷ from which it was probably borrowed. That compilation we believe to be of Salernitan origin and if this be the case, the "Isagoge" would be the earliest Salernitan medical textbook that has survived.

TRANSLATION FROM THE ANGLO-SAXON

"Besides these things of which we have spoken there are the signs and the characters and the twelve wind-names. And there are the four destined [amearcod = *marked off, designated*] seasons, spring, summer, autumn and winter, and eke those things which are after their likeness, that is to say childhood and youth [cniht iugod = *knight-youth*] and manhood [ge-þungen yld = *waxen age*] and very old age.

Springtime and childhood [cild iugod] agree, and youth and summer are alike, and autumn and manhood are companions, and winter and age [both] decline.

Springtime is wet and warm. The air is wet and warm. Childhood is wet and warm and the blood thereof is wet and warm.

Æstas is summer. It is warm and dry. Fire is warm and dry. Youth is warm and dry. Colera rubea, those are red humours

atque precepta Hypocratis medici," printed on p. 137 of that volume.

¹⁷ The "Isagoge" of pseudo-Soranus has only twice been printed; in (a) the "Collectio de re medica" of Albanus Torinus, Basle, 1528 and in (b) the beautiful Aldine volume "Medici antiqui omnes qui latinis litteris diversorum morborum genera et remedia persecuti sunt." We know of no MS. of the "Isagoge."

[*incoða*],¹⁸ occur in summer. They are warm and dry.

Autumn that is harvest, its nature [*gecynd*=kind] is that it is cold and dry. Earth is cold and dry. Manhood is dry and cold. In autumn occur *colera nigra*, those are black humours [*incoða*], they are dry and cold.

Hiemps is winter. It is cold and wet. Water is cold and wet, so is the old man cold and snivelling. Phlegms, that is coughs or colds, are the diseases of the old and the infirm [literally, *injure or affect injuriously* (*deriað*) *the old and infirm*]."

THE GLOSSES

The following passage is rendered from the sentence at the end of the Latin text: "These things concerning the character of the seasons and elements as well as concerning the age[s] of man have been extracted by us. Now we will declare by another method [i.e., by the use of the vernacular] how those things may be known to scholars [*clericis*] which are clearly grasped by monks [*monachis*]."

At the end of the Anglo-Saxon text is a Latin sentence which may be translated thus: "The following figure which we have drawn up by request sets forth these things in a clear light to all who wish to know."

In the Latin portion of the text there are several glosses, perhaps by the same hand as the MS. itself. These suggest that the glossator who needed such explanations was imperfectly acquainted with Latin. Thus he gives the following explanations:

orsi id est locuti

qualitantes id est gehwylcnyssa

colera nigra id est blac gealla [black gall]

eviscerata vel manifestata vel declarata

sanximus id est statuimus

There are two other glosses that merit some attention and that we may discuss briefly:

(1) *significationes id est tacnunga*

The word *tacnunga* means a sign or explanation and is derived from the verb *tacnian* to show, explain or point out, modern English *token* and *teach*. To the philosophers of the Dark Ages and, indeed, till a much later time, phenomena were not studied or recorded for their own sake, but because of their *tacnunga*, their teaching or significance; that is, for the meaning that they were thought to bear in the scheme of things. This point of view colors the whole of mediæval science. Phenomena interested our forbears not so much as leading to conclusions but as illustrating doctrine. This fact provides the explanation of many of the misunderstandings and misinterpretations of phenomena on the part of the men of the Middle Ages that have proved so puzzling to modern explorers of their writings.

(2) *nomina id est grece onomata*

It is interesting to find a Greek term used in illustration of a Latin word. This is not a very rare event in Early English scientific writings. In the present case it is with the names of the *winds* that the Greek word *onomata* is equated. This is part of a much wider attempt to adjust the special Greek names of the winds to the cardinal points. The Greeks, though they recognized the four cardinal points, did not at first place the winds in systematic relation to them. This was rather a Latin device, and the Romans arranged the winds in four sets of three, each set in relation to one of the cardinal points. Anglo-Saxon like the other Nordic languages though without special names for the winds called them only according to their relation to the cardinal points. Wind names or *onomata* were therefore borrowed by the learned from Greek, probably through the Latin of

¹⁸The word *incoða* or *incoðan* is usually a generic term for disease. Here and above we have translated it *humour*, the supposed cause of the disease. The meaning here is obviously *gealla*, gall or bile, as given in the gloss to the Latin version.

Bede, who took them from Isidore, who, in turn, derived them from Pliny. The Latin languages have returned the compliment by borrowing the names of the cardinal points from the Teutonic. The Greek names for the winds did not retain their hold and have long passed from the vernacular, if they ever truly entered it, but the Teutonic names for the points of the compass are still in use all over Europe both in the Latin and the Nordic languages. Our MS., however, is a learned product, and its author naturally uses for the winds the Greek names which he took from Bede rather than the terms commonly employed by the people.¹⁹

THE DIAGRAM

The diagram missing from the Byrhtferð MS. summed up the physical theories of its author. We reproduce this diagram from another source and have added a Latin key and a simplified English version. (Figs. 2, 3 and 4.) In the latter the scheme is reduced to its ultimate essentials. The legend which is written around the diagram is as follows:

Hanc figuram edidit byrhtferð monachus ramesiensis cenobii de concordia mensium atque elementorum.

Hi sunt solares menses [gloss=sic denominantur quia secundum ipsius cursum constant] qui habent dies. xxxi. Ianuarius

Martius Maius Iulius Augustus October December.

Hi autem. xxx. [gloss=sic dies habent secundum solis cursum] Aprilis Iunius September November. Februarius uero ab omnibus erat.

Retinet haec figura. xii. signa. et duo solstitia. atque bina equinoctia. et bis bina tempora anni. in qua descripta sunt. iiii. nomina elementorum. et duodenorum uentorum onomata atque iiii etates hominum. Sunt insimul coniuncta bis bina litteræ nominis protoplastis adae.

Demonstrat enim uero quales menses lunas. xxx. quales xxix habent.

Translation: "Byrhtferð, a monk of the monastery of Ramsey, composed this figure of the concord of the months and of the elements.

"These are the solar months (gloss—they are so called because they accord with the course of the sun) which have thirty-one days: January, March, May, July, August, October, December.

"But these thirty (gloss—they have this number of days according to the course of the sun) April, June, September, November; but February differs from all.

"This figure exhibits the twelve signs [of the Zodiac] and the two solstices and the two equinoxes and the four seasons of the year; and there are designated therein the four names of the elements and the titles of the twelve winds and the four ages of man. And, moreover, these are conjoined with the four letters of the name of Adam the first created. Furthermore, it shows which months have thirty moons and which have twenty-nine."

Turning to the details of the diagram itself, we may note first that it has the usual mediæval arrangement of the East at the top instead of the North as in our modern system. The diagram is bounded by a curve divided into three bands or layers. The outside band gives the twelve signs of the zodiac. Within this are ranged the solar months

¹⁹ Bede: "De Natura Rerum," ch. 27, gives the Greek names of the winds. He probably borrowed them from Isidore (Etymologiarum, Vol. xiii, p. 11) who had the scheme from Pliny (Nat. Hist., II, 46ff.). The same scheme is encountered in Seneca (Quaest. Nat., V, 16), Johannes Lydus (De Neuribus, IV, 119), and in the Peripatetic writings (Meteorologica, De ventorum situ et appellatione, and De Mundo). The Anglo-Saxon names for the winds with their supposed Latin or Greek equivalents are found in glosses from the eighth century onward, and are printed in Thomas Wright's "Anglo-Saxon and Early English Vocabularies," edited by R. C. Wülfker, 2 Vols., London, 1884, p. 36.

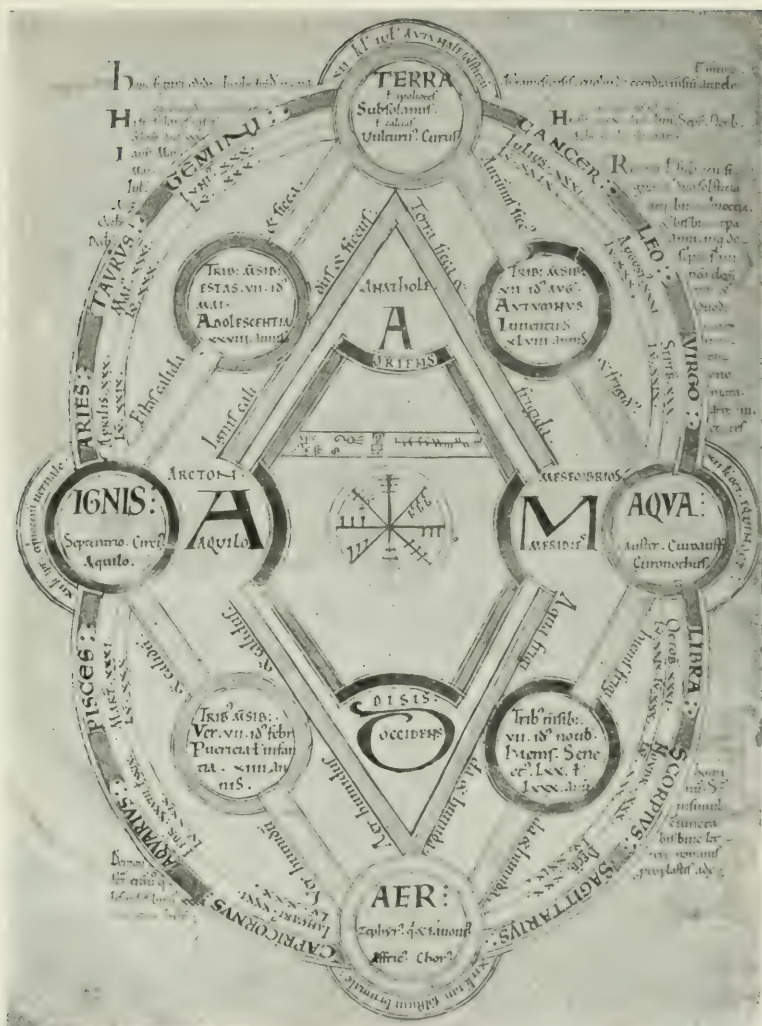


Fig. 2. Byrhtferð's diagram of the physical and physiological fours supplied from MS. 17 of St. John's College, Oxford, written in the year 1110.

with a note as to the number of days in each and arranged so that each month corresponds to its zodiacal sign. The inmost band of the curve shows the supposed relation of the months to the movements of the moon and merits a few words of explanation. It represents the *Dionysian cycle*,²⁰ which was invented in the sixth century and was

nine and thirty days alternately. An intercalary month of thirty days was inserted seven times in nineteen years. This calendar, which was adopted at the Council of Whitby in 664, has no practical value except for the calculation of Easter, a subject of the keenest controversy in the English church at that period.

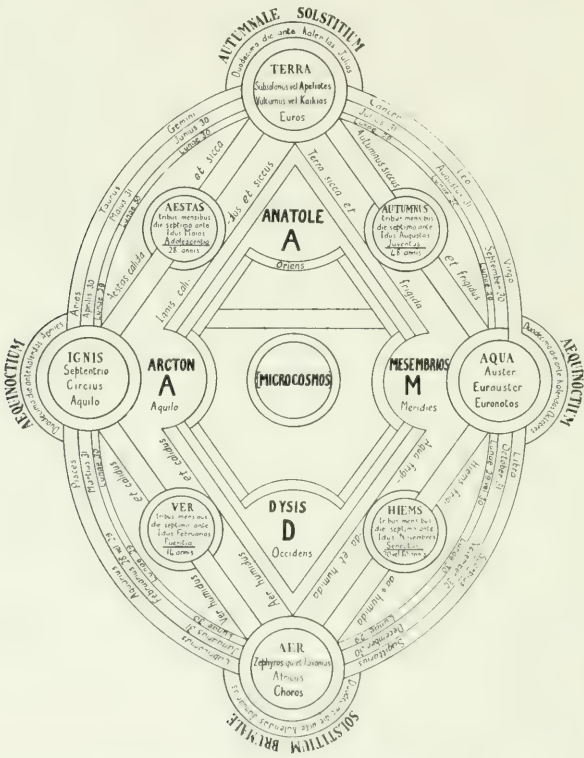


Fig. 3. A simplified key to Byrhtferd's diagram.

given a wide popularity by Bede. In this cycle a use was made of artificial lunar months, the length of each of which depended on the date when it began in the solar year. These months were given twenty-

²⁰ So called from its inventor Dionysius, a Scythian monk of Monte Cassino, who evolved it about 525 A.D. His object was to homologize the Eastern and Western date of Easter.

The curve which forms the outer rim of the diagram is interrupted at four points by semicircles within which are written the date of the equinoxes and of the solstices. A table of these and of the seasons as defined by the diagram is as follows:

Winter Solstice Duodecimo (die ante) Calendas
Januarias Dec. 21st.

Spring Equinox = Duodecimo (die ante) Calendas
 Apriles = March 21st.
 Summer Solstice = Duodecimo (die ante) Calendas
 Julias = June 20th.
 Autumn Equinox = Duodecimo (die ante) Calendas
 Octobres = Sept. 20th.
 Spring begins, (Die) septimo (ante) Idus Februarias
 = Feb. 7th.

At the four points of interruption of the outer curve, as though forming the basis of the whole, are circles indicating the four elements, Earth, Air, Fire and Water, with each of which are associated three wind names, grouped according to the cardinal points. Within the curved bands of the

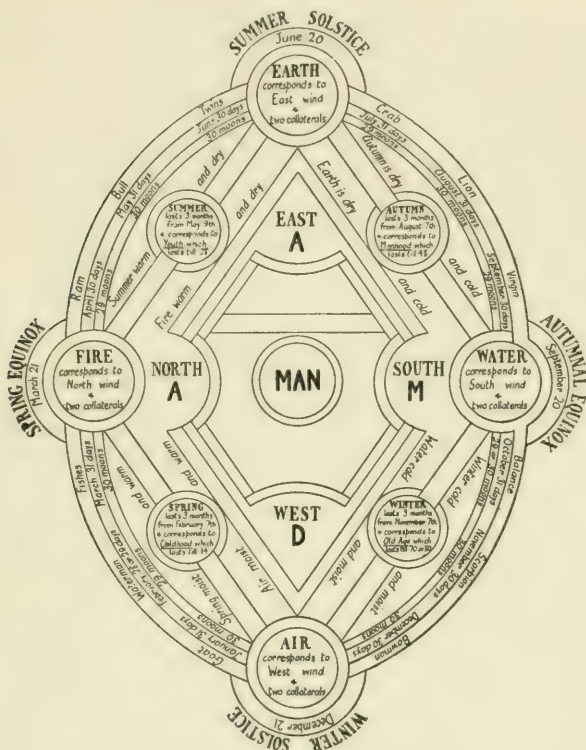


Fig. 4. English translation of the essential factors in Byrhtferð's diagram.

Summer begins, (Die) septimo (ante) Idus Maias = May 9th.
 Autumn begins, (Die) septimo (ante) Idus Augustas = Aug. 7th.
 Winter begins, (Die) septimo (ante) Idus Novembres = Nov. 7th.

This division of the year, which is somewhat different from our modern reckoning, corresponds with the views of Bede.

figure are diagonal lines indicating the seasons and their *qualities*, hotness and coldness, dryness and moisture, each season being ranged within the appropriate months, and the qualities, like the *elements*, being set forth according to the usual Aristotelian tradition. These diagonal lines are also interrupted by circles showing the duration

(three months) and the date of commencement of each of the four seasons, together with the corresponding four Ages of Man. From it we learn that man's life may be thus divided:

Spring = Childhood, i.e. to 14 years, is Moist and Warm.

Summer = Youth, i.e. to 28 years, is Dry and Warm.

Autumn = Manhood, i.e. to 48 years, is Dry and Cold.

Winter = Old age, i.e. to 70 or 80 years, is Moist and Cold.

Within the outer diagonal bands are inner diagonal bands showing similar qualities for the four elements. Related to these again are the four points of the compass, arranged to illustrate the "four letters of the name of the protoplast Adam."

A	Anathole	Oriens	East
D	Disis	Occidens	West
A	Arcton	Aquilo	North
M	Mesembrios	Meridies	South

We will not here attempt to trace fully this elaborate custom of associating what we have called *the physical and physiological fours*. We may, however, make some remarks on the development of the conception.

The earliest division of the ages of man is not into four but into seven, and in this form it appears in the pre-Hippocratic treatise, *περὶ ἐβδομαδῶν*. Hippocrates himself in the "Aphorisms" (III 18) has a triple division, *παῖδες, μέσοι* and *γέροντες*. Nevertheless, in his "De victus ratione" (I, 33) there appears a fourfold division connected with the four elementary qualities thus:

- | | |
|------------------------|-----------------|
| (1) <i>παῖς</i> | warm and moist. |
| (2) <i>νεάνισκος</i> | warm and dry. |
| (3) <i>ἀνὴρ</i> | cold and dry. |
| (4) <i>πρεσβύτερος</i> | cold and moist. |

So also in the Hippocratic "De natura hominis" (VII) these qualities are applied to the seasons and the humours thus:

Blood is warm and moist and dominates in spring.

Yellow bile is warm and dry and dominates in summer.

Black bile is cold and dry and dominates in autumn.

Phlegm is cold and moist and dominates in winter.

Galen, commenting on this work, observes²¹ that Hippocrates has omitted to make the corresponding fourfold division of ages, so he does it himself thus:

Spring	<i>παῖδιον</i>	warm and moist blood.
Summer	<i>ἀκμάζων</i>	warm and dry yellow bile.
Autumn	<i>παρακμάζων</i>	cold and dry black bile.
Winter	<i>γερῶν</i>	cold and moist phlegm.

To this grouping, some of the later MSS. of Galen add the four elements, earth, fire, air and water. The table thus elaborated became part of the "Galenic System," though rarely used by Galen himself. The chief notices of it are in the spurious Galenic treatises, "Medical Definitions" and "On the Work of Hippocrates concerning Humours."

When the division of the signs of the zodiac into four groups was first made, we are unable to say, but it appears fully developed in the astrological works of Manilius (first century, A.D., perhaps in its first decade).

The four cardinal winds we have already pointed out are more a Latin than a Greek development. They appear, however, in a work attributed to Galen²² but regarded as a late Byzantine product.

There yet remain unexplained two factors in the diagram, namely, the signs in the central circle and those in the transverse bar above it. The central circle of the diagram appears to represent the division of time of the Anglo-Saxon sundial. On that instrument the day of 24 hours was divided into eight *tides*. Each of these tides consisted of three hours of our present notation or two *stundr* of the Nordic reckoning. This system was common to Northern Europe and only gradually gave way to the duodecimal system which has since become universal, but which was very early in vogue

²¹ Kühn's edition, Vol. xv, p. 186.

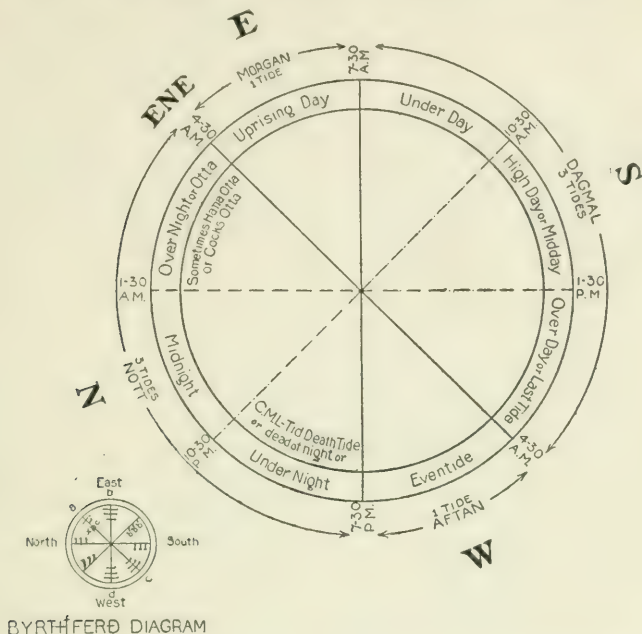
²² *εἰς τὸ περὶ χυμῶν Ἱπποκράτους ὑπομνήματα*.

in Southern Europe. We append (Fig. 5) a diagram of the Teutonic sundial.²³

The horizontal bar above the central circle shows the name of Christ [$\chi\rho(\iota\sigma\tau\omicron)s$] and certain signs together with a linear in-

scription which appears to be an Irish ogham. This ogham, if such it be, cannot be read intelligibly nor can we interpret the remaining signs.

The general scheme of the physical and



BYRHTFERÐ DIAGRAM

Fig. 5. The Teutonic sundial from details kindly supplied by Father John Fletcher.

Day-Night was divided into four divisions and eight tides. The divisions were: Morgan, 1 tide; Dagma, 3 tides; Efen, 1 tide; Nott, 3 tides. Each tide (=three hours of modern notation) was divided into two *stundr* and the first tide began when the sun was ENE i.e., 4.30 A.M. In the inset Byrhtferð's circle the orientation is not quite the same, the first tide, marked $\chi\rho s$, begins NE instead of ENE. This disorientation was needed for the "concord" of the physical and physiological fours which the diagram seeks to demonstrate. The Greek letters $\chi\rho s$ have taken the place of the runic letters which in the original Teutonic sundials marked the division between Day and Night. The letters b.b.b. on the SE radius of Byrhtferð's circle stand perhaps for *ter beatus*, thrice blessed, and perhaps mark the performance of Mass which was, however, usually at 9 A.M. Otherwise Byrhtferð's divisions follow the usual scheme of the sundial: a-b=Morgan, b-c=Dagma, c-d=Efen, d-a=Nott.

²³ We have encountered a diagram identical with the central circle of Byrhtferð's figure in a tenth century calendar of Anglo-Saxon workmanship in the British Museum. Cotton Julius, A vi, fo. 10 v.

In this MS. the circle is associated with several Byzantine symbols and on the following page (fo. 11 r) is the name of God, in Greek and Hebrew, together with several Greek words, e.g., "*fos* = lux."

physiological fours as presented in this complex form in our MS. was described in outline by Isidore of Seville (570-636) and by Bede (672-735).²⁴ It underwent all sorts of elaboration right down to the seventeenth century. The actual diagram before us represents its specifically Anglo-Saxon development.

CONCLUSIONS

We would lay some stress on the diagram accompanying our text or rather on the formula which it represents. It is one of the few passages in the scanty Anglo-Saxon medical literature which give us an insight into the theories on which the minds of the early English *physici* were working. These theories were Greek in origin and the presence of this Greek element separates such writings from a yet earlier stratum in which the point of view remains truly Teutonic and barbarian. We have shown that, in spite of the profound Greek influence, certain primitive Anglo-Saxon elements survive in the Byrhtferð diagram of the physical and physiological fours. The formula of the diagram is of wider interest than to the special student of Anglo-Saxon literature, since the comprehension of the theory on which it is based is necessary to anyone who seeks to understand mediæval science and especially pre-scholastic medicine.

The figure exhibits to perfection the fundamental doctrine of the *interrelation of macrocosm and microcosm*, a theory which may be followed as a guiding thread through

the bewildering labyrinth of mediæval science. This doctrine, whether frank and open, as in many Neoplatonic writings and in the document before us, or whether allegorized, overlaid and developed, as in much of the later Arabian and scholastic literature, was yet ever present in the minds of such mediæval writers as concerned themselves with natural phenomena. These men were imbued with ideas inherited perhaps from the Stoic school of philosophy and interpreted by a simplified Greek astrology under the syncretic influence of the Hermetic writings. To them the principle of *universal solidarity*, that is of the interrelation of all parts of the universe and their mutual interdependence, was the ruling motive of *philosophia naturalis*. They considered that ancient authority, both divine and profane, had provided them with a key to the structure of the great outer universe. With this key they believed themselves able to unlock also the secrets of the lesser inner world. Thus the investigation of the details of the human mechanism came to be regarded as superfluous or even misleading, since the necessarily partial character of such an enquiry might lead to misrepresentation of that great whole towards the comprehension of which every mind must strive. Anatomy and physiology were, therefore, altogether neglected or rather replaced by such mnemonic systems as that before us. At times the theologians, seeking to demonstrate the direct influence of God upon his world, would break through the charmed circle of universal solidarity. At other times again, the theory of macrocosm and microcosm was given a Christological interpretation by mystical writers, more or less unconsciously under neo-Platonic influence. In the main, however, this view of the interdependence of man and his world held its own in the Dark Ages, and persisted little changed, right through the period of scholasticism and of the Arabian revival, on through the Renaissance, and down to the

²⁴ The simpler scheme suggested by Isidore and Bede is also reproduced in St. John's College, Oxford, MS. 17, fo. 39 v. An early example of a graphic expression of this scheme is encountered in a document of French workmanship in rustic capitals, dating from not later than the ninth century, Bibliothèque nationale MS., lat. 5543, fo. 136 v. This figure is reproduced by Charles Singer: "Studies in the History and Method of Science," Oxford, 1917, Plate xiv.

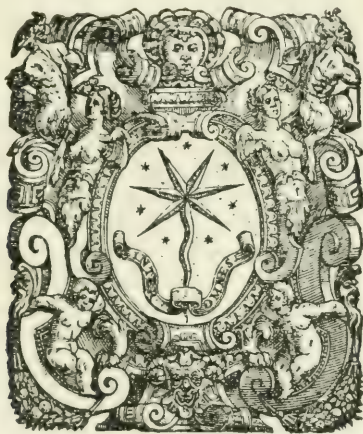
time when the human intellect was relieved from its long thralldom to ancient philosophy by the rise of the experimental method.

The innermost part of the diagram is intended to portray the prototype of man, Adam, the protoplast, the first created. In certain other similar early schemes the outermost part of the diagram suggests

either actually or allegorically Him in whose image man was made. It was thus intended to suggest that just as we may know something of God, the Creator, from the world that he has wrought, so by a knowledge of that world there is revealed to us something of the nature of man the creature.²⁵

²⁵ We have to thank several friends for help with this article: Dr. J. K. Fotheringham has supplied us with information for the interpretation of the Calendar. Father John Fletcher has drawn our attention to the Anglo-Saxon sundial and

has provided Fig. 5 and its legend. Mr. W. H. Stevenson has given us suggestions as to the passage of the names for the four cardinal points into the European languages and Dr. E. T. Withington has contributed towards our estimate of the genealogy of the physical and physiological fours.



THE FIRST SCIENTIFIC WORK ON SPECTACLES

By CASEY A. WOOD, M. D.

CHICAGO, ILL.

ABOUT six years ago the Library of the Surgeon General of the Army, through the courtesy of the late Dr. Mortimer Frank, acquired a copy of Daga de Valdez's work on spectacles. This small, octavo volume, published at Seville by Diego Perez in 1623, an illustrated book of 199 (99½ double) pages, is replete with interest. In the first instance, it is an extremely rare work; very few copies are known and the officials of the Surgeon General's Library have been unable to trace the public sale of a single one. In the second instance, the monograph is interesting because it is the first scientific work on the subject under treatment; and, finally, its publication throws some light on the status of scientific works and workers in the Spain of the early seventeenth century.

The title page, as shown by the accompanying photograph, tells us that the book is written on the use of spectacles for every kind of sight with lessons on the varieties of visual defects for those who need some special kind of spectacles; it also shows the time of life when certain glasses are most useful, how they may be prescribed; it also discusses other means for utilizing and preserving the eyesight.

This monograph¹ was written by Benito Daga de Valdez, notary of the Holy Office (Inquisition) in the City of Seville. It is dedicated to our Lady of the Holy Fountain of the City of Cordova. The title page is decorated by a pair of spectacle frames, from which stream light rays coming

¹ Hirschberg (Geschichte der Augenheilkunde, 1908, 2 Ed. ii, 280,) mentions the Valdez monograph; and there is a translation or (rather) transliteration, 1892, by Albertotti of a French Codex of 1627. See, also, Garrison's "History of Medicine," 1917. 2 Ed.

from the right eye hole, filled by the sun; from the left, occupied by the moon. The margins of these illustrations show various ophthalmic symbols. The *con privilegio* is placed above the date and the publisher's name.

V S O

DE LOS ANTOIOS

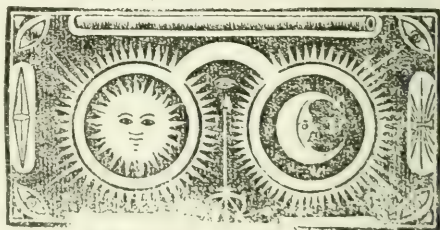
PARA TODO GENERO DE VISTAS:

En que se enſeña a conocer los grados que a cada vno le faltan de ſu viſta, y los que tienen qualquier antojos.

Y ASSI MISMO AQVE TIEMPO SE AN de ver, y como ſe pedirán en auſencia, con otros auſos importantes, a la vtilidad y conſervacion de la viſta.

PORE LL. BENITO DAGA DE VALDES,
Notario de el Santo Oficio de la Ciudad de Sevilla.

DEDICADO A NUESTRA SEÑORA
de la Fuenteſanta de la Ciudad del Cordova.



CON PRIVILEGIO

Imp. en Sevilla por Diego Perez Alonſo 1623.

Title page of VALDEZ's essay on spectacles, Seville, 1623.

Albertotti (*loc. cit.*) endeavoured to secure a copy of the work that he might compare the MS. of the 1627 French translation, found in the *Bibliothèque Nationale* with the original, but the Paris Library did not possess one; moreover, none of the seven 170. More recently R. Greeff (*Zeitschr. f. Ophthalm. Optik*, 97) has given a review of the Valdez treatise, based on the French translation transcribed by Albertotti.

great European libraries that were lucky enough to own a Valdez would loan it to a foreigner. With the exception of two examples, one in Washington and one in the British Museum, the eight known copies are held in Spain.

Albertotti heard of a copy that had been for sale in Paris; I believe this to be the example that, bought by a London dealer, found its way to the Surgeon General's Library.

Valdez's manuscript was censored by Brother Domingo de Molina for the Vicar General; he found nothing in it "contrary to the teachings of the Holy Catholic Church nor against good morals." Not only that, but the learned Brother approved of the philosophic style of the writer and stamped the whole volume with the approval of the Church.

Then follows the *Approvacion* of the learned Doctor Juan Cedillo Diaz of Madrid, who also finds nothing in it *contra la Fe*.

The *Privilegio* of His Majesty is granted for a period of ten years; the conditions of the license must be observed, otherwise a fine of 50,000 maravedis will be imposed, with confiscation of the unlawfully printed books, and the destruction of the printing material.

Following this is the *Tassa* (*tasa*), fixing the price at which the volume is to be sold. This was four and a half maravedis a leaflet; so that this book of two hundred pages was retailed at about thirty cents. This seems a fair price when one considers that the purchasing power of early seventeenth-century Spanish money was about ten times that of present day currency.

Finally, after the book had been printed and bound it was again censured by a government official. Its contents were compared with the original manuscript, and it was formally certified that the printed pages, including the *errata*, corresponded to the written copy. Neither Church nor State took chances in the brave days of old!

What may be termed the book proper

begins with the dedication. This was not offered, as in most instances, to the reigning sovereign or to some great noble, but to Our Lady of the Holy Fountain. Couched in poetic and appropriate language the writer shows how much resemblance there is between those limpid streams that in the end join the shining sea, and the light rays, intensified and cleared by such objects as glass lenses, enter and are projected from the human eye.

Surely it is more dignified, also, from the viewpoint of science, to dedicate such a work to the Benign Virgin who knows all our weaknesses and stands ready to help in the hour of need, than to address it to some profligate old patron who generally knew little or nothing about the dedicated book and cared much less about the fate of its writer.

The address to the reader is accompanied by a portrait of the writer. This, in its turn, serves as the introduction to an illustrated, eight-page poem by a friend of the author, a "Romance," describing at considerable length, the appearance of Our Lady of the Fountain in the City of Cordova.

A table of paged (or rather folioed) contents follows.

A second, more scientific, address to the reader is now given in which the author quotes Aristotle and other authorities, to stimulate his study of the natural sciences and particularly to induce him to investigate optics and ocular philosophy, if for no other reason than that "*Dios crio nuestros ojos*."

Although the table of contents does not indicate it, the Valdez text is comprised in three books, the first two dealing with the anatomy of the eye and the physiology of eyesight. The first book, again, is subdivided into eleven, the second, into ten chapters.

The third book is made up of four curious and interesting dialogues. The *interlocutores*

differences between concave, convex and plane lenses. The author also discusses protective (*conservatio*) glasses.

Following these essays, the writer, in a third chapter, answers the question, why do convex glasses enlarge and concave lenses decrease the apparent size of objects? Chapter iv demonstrates (by the help of well-drawn diagrams) why convex lenses

LIB. II. DE EL VSC

détro de la luna estuviere del mismo tamaño q
la otra de la. S. que se ve por de fuera de la mis
ma luna, entonces se note en el palillo el lugar
donde estuvierón los antojos, mostrando la igual
dad de los círculos. Y quitados los antojos, apli
que se el palillo á la linea, desde el punto de la
estrella: y mirese qué numero muestra el punto
senalado en el palillo, que de tantos grados se
ran los antojos. Y si passaren de diez grados, en
esta segun.

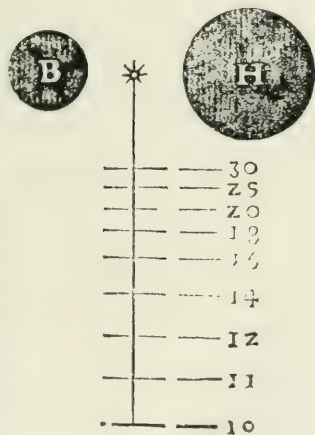
esta segun-
da medalla.

B. H. se hallan los demás, hasta treinta. Y en esta misma medida se pueden también saber los grados de cualesquier anteojos con vexos q̄ pasaré de diez grados, asífe-

tar.

A chart for determining the strength of lenses.

From Da Silva & Vanderhoff (1967) and from the literature, it is known that



bring divergent rays to a focus, while concave lenses scatter (*apartan*) them.

In a subsequent and important chapter the numeration of lenses is considered, and it is this portion of the work that mostly interests the ophthalmologist. Chapter vi discusses—and what a practical subject!—

the size of the prescribed lenses, and (helped out by diagrams) the means by which one may recognize the strength of both concave and convex glasses. This latter process is mainly that of testing the focal distance of each lens by "a person with perfect sight."

An account of the chief methods of determining the refraction now follows, in which a decided difference is noted between congenital and acquired visual defects.

Ordering glasses for the relief of presbyopia in the Spain of 1622 was quite as satisfactory and efficient a process as that adopted nowadays by jeweler's shops and department stores. If the patient was not "at hand" the following rules obtained: for a man between 30 and 40 years of age a convex glass of two "degrees" is required; between 40 and 50, two and one-half degrees; between 50 and 60, three degrees; 60 and 70 three and one-half degrees; 70 and 80, four degrees; after that period five or even six degrees.

The “degree” (*vara*) of Valdez closely approximated our diopter. *Vara* was really a Spanish unit of measurement somewhat less than the meter; consequently a “two-degree” lens was “stronger” than our two-diopter glass. For example, a “5-*vara*” lens equals nearly 6 D.; “25-*vara*” equals 30 D., and so on.

For some unknown reason Valdez believed that women require somewhat stronger presbyopic lenses than men. At any rate he found them "more subtle" (i.e. more delicate) than the other sex, and with weaker vision.

The dialogues referred to, "following the custom both of the ancients and moderns," largely consisted, of course, in a repetition of the opinions, rules and laws of the first part of the work, interspersed with numerous quotations from favorite poets, writers and medical authors of all the ages. They are really quaint, interesting talks not

only about optics but upon all sorts of topics, mostly related to medicine, but now and then on the intimate connection between religion and physiology.

The first conference relates in particular to short, injured or weakened sight; the second series to unusual forms of defective, confused and unequal vision; the third to cases of incomplete correction of visual

perfectamente. Y lo mismo pueden hazer las mugeres de esta vista corta por naturaleza. Y coméçamos desde cinco grados, por que a buena dilatacion, puede cada uno juzgar, q̄ mien tras mas apartado contare los granos, menos grados á me nester. Y tambien por no dar mas la gar la pequenez de este libro á que se apuren los primeros grados, siendo tan poca la falta que hazen, pues sin ellos se puede pasar la vista, y no ay dificultad en conocerse.

H CAPI



Chart for examining the eyes for glasses.
From *Diego de Valdez's essay on spectacles*, 1623.

defects by glasses and to certain difficulties experienced by patients in their attempt to wear glasses; and the fourth and final conference deals with what we would call "opera glasses"—small telescopes useful for seeing in the far distance.

The actual procedure in choosing reading glasses described by Valdez does not essentially differ from certain methods much employed in the present day, except that the "Master" several times insists that glasses are not cure-alls—thus coming di-

rectly in conflict with some of our modern ophthalmologists—and that the state of the visual apparatus itself (its diseases for instance) and the condition of the general health should always be borne in mind, a contention that raises him miles above the refractionists of the department store or even of the optometrical variety.

Valdez is opposed to the use of the monocle, and puts into the mouth of the shortsighted "Patient"—a member of the conference—a request that he be given a single lens to be used occasionally for distinct vision in the distance and, thus, not to be bothered by wearing glasses constantly; but the Master quickly disposes of that demand by, "Don't do it; such a glass will make your eyes unequal."

Stenopaic lenses were well known to Valdez. "William" tells the Master that he has suffered much from a serious disease of the eyes that has ruined his sight; in consequence, he can read only by (almost) closing his eyes and gazing through the nearly shut lids. The Master then informs William that he can thank the Doctor for an invention that will greatly assist his vision. Two metal disks, mounted in ordinary spectacle frames are to be pierced with holes, of a size and shape indicated by the Master, and worn over the glasses corresponding to his refractive error. When held at the required focus he will be able to read print clearly and with less strain and effort.

The experiences of the doctor in the Valdez dialogues are, generally, also ours. For example, in ordering glasses for myopes these must not diminish the apparent size of the object; nor must the "buyer" choose glasses so strong that they pain or tire the eyes; "it is far wiser to wear lenses somewhat weaker than those that give the clearest sight in the distance since they are more comfortable and do not strain the eyes." Can that advice be bettered?

An interesting discussion of the material to be chosen for spectacle frames, and of the form of these, arises. Will the buyer choose leather, steel, silver or gold? Gold frames last longer but it doesn't much matter; he can have steel if he wishes. Leather is certainly a coarse and unsuitable material.

Valdez advises that in ordering *weak* glasses they be made planoconvex or planoconcave, as the case may require, the concave surface of planoconcave lenses to be next the eye, the convex surface of planoconvex glasses to present externally. In ordering *strong* lenses, however, the two surfaces are to be about evenly ground for the purpose.

Protective glasses were in the Valdez period made of almost as many colours as we see in the present-day optician's shop. Valdez points out that they protect the eyes from the winds of winter and the bright light of summer; and the "Spectacle-maker" in the dialogues speaks of light-yellow, dark-yellow, red, green and blue glasses, specially recommending—just as each of our opticians recommends a pet color, shade or make—the first and the last named.

The argument for spectacles as against nose-glasses leaves nothing for modern addition. Valdez remarks, in discussing the

question, that glasses of the latter type are unsteady and likely to fall off the nose, as are all lenses not in some fashion anchored to the ears or to some other part of the head. King Philip, said the Doctor, recognized this need, and had his glasses provided with temple pieces which he inserted beneath his hat and so steadied his royal lenses in front of his royal nose. "That contrivance," replied pupil Apollinaris, "is all very well for kings, who keep their hats on in any presence, but it will not do for a poor man like me. The first time I took off my hat the whole apparatus would fall to the ground."

Finally, the mention of leather as a material for spectacle frames reminds us that probably it was more widely employed as a receptacle for lenses of all sorts (themselves exceedingly expensive even as late as 1620) than is generally supposed. Although leather frames did not stand wear as well as frames made from gold or silver yet they were cheaper and softer; consequently they appealed not only to patients with tender skins but with slender purses. That so few leather spectacle frames are preserved in modern museums may in part be due to the fact of their perishable quality; very few survived the wear and tear of every day use.

QUI DIACE SALVINO D'ARMATO DEGLI ARMATI
DI FIRENZE, INVENTOR DEGLI OCCHIALI
DIO GLI PERDONI LE PECCATA
ANNO D. MCCCXVII.

The inscription appearing on the tombstone of Salvino degli Armati. The stone originally over his remains in the cloister of Santa Maria Maggiore in Florence has now been removed, with a portrait-monument, from his grave and placed in the chapel of the Virgin Mary on the right side of the church for preservation. The translation reads: "Here lies Salvino de 'Armato degli Armati, of Florence, the inventor of spectacles. May God forgive him his sins. He died A.D. 1317." (*Garrison—History of Medicine*)

CHARLES CALDWELL, A BIOGRAPHIC SKETCH¹

By WILLIAM SHAINLINE MIDDLETON

MADISON, WIS.

AREBIRTH of medicine from the bigotry of fads and theories of practice into the light of modern science marked the first half of the nineteenth century. Medicine advanced from beneath the cloud of superstition to take a dignified, deserved position among its fellow sciences. Of necessity such a momentous transition was attended by controversy, abetted not a little by the instability of the post-bellum period in America. Philadelphia, the center of affairs medical in that day, was naturally seriously involved in the prevalent medical unrest. The system of practice of Cullen had collapsed; and on its ruin, the dominant Benjamin Rush was endeavoring to establish his theory of the unity of disease. Disputation was the order of the day; nor were the methods pursued always above reproach. The scurrilous William Cobbett, under the pseudonym of Peter Porcupine, and other pamphleteers were disturbing the traditional tranquillity of this Quaker seat of learning.

Unfortunately the idealism of John Morgan had been largely replaced by intrigue and petty politics at Pennsylvania. Indeed the system of medical education then in vogue engendered similar conditions in medical centers everywhere. Medical schools were essentially proprietary and the income of their professors depended on the popularity of the group as a whole. The system of direct financial return from medical instruction was in itself reprehensible; supplemented by the existent plan of medical apprenticeship and house or private tutelage, a vicious cycle was instituted which bore fruit in suspicion and calumny.

This period marked the spread of medical education beyond the Alleghenies, and the

subject of this discourse was intimately connected with the establishment of two medical schools in the Mississippi Valley.

Charles Caldwell was a fitting product of these turbulent times. His years (1772-1853) link three important generations of American medicine. By reason of his longevity, personal characteristics and associations, his "Autobiography" furnishes a wealth of historical information. Unfortunately for the accuracy of this elaborate contribution, Caldwell disregards his laudable admonition against self-adulation and deep emotion, and plunges into the relation of events and circumstances which scarcely savor of diffidence or equanimity. But "surcharged as it is with venom and rancour," it remains "a storehouse of facts (and fancies!) relating to the University of Pennsylvania, to Rush and to the early days of the Transylvania University and the Cincinnati schools. Pickled in vinegar, the work is sure to survive."

Although accused "of using more words to say nothing than any other American medical writer of the last century," Caldwell possessed a facility of expression which lends an intimate personal touch to the description of notables with whom he associated. At the beck of his magic pen, the methodical Adam Kuhn stalks stilly from the written page, clad in the black breeches and long skirted buff waistcoat of the day, with full hand and bosom ruffles. "So sternly and stubbornly regular were his steps: . . . that he could scarcely be induced to quicken or lengthen them, either to escape from a thunder-gust or a hail-storm, to relieve colic, to arrest hemorrhage, or scarcely to save the life of the most meritorious of his patients." As faithfully does

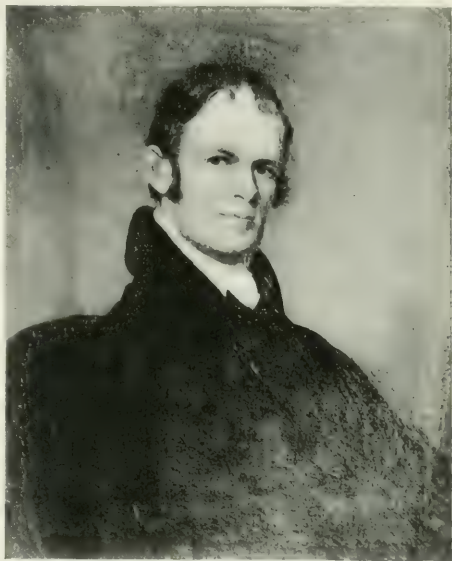
¹ Read before the Medical History Seminar, University of Wisconsin, January 7, 1920.

he portray the suave, polished Rush. Nor does the cockney accent of the famous Priestley escape his attention. The conjurer presents Caspar Wistar, the hustler, "often out of breath and forever out of time." In person, florid and apoplectic, Wistar was possessed of a sensitive nature and quick temper, which time and self-restraint ultimately held in abeyance, until conventional history leaves us only the charming host of mature years. A colleague of Caldwell at Lexington elicited this comment: "But his nerves seemed made of aspen leaves, interwoven with the leaves of *mimosa sensitiva*, that trembled and shrank from the slightest touch of responsibility."

Caldwell possessed a wonderful command of English and eloquence of expression, which made him respected as a public speaker and feared as a disputant. The following extract from "An Address to the Philadelphia Medical Society, February 20, 1801, on the Analogies between Yellow Fever and True Plague" testifies to these powers: . . . "I disclaim all pretension to the ornaments of rhetoric. It neither comports with my qualifications, nor falls within my aim, to awaken your sorrows by the enginery of pathos; it belongs not to me to conduct you enraptured through the Elysium of fancy, to cull on our way the flowers of taste, and strew them before you in the extravagance of declamation; nor is mine the power to overwhelm your souls by the grandeur of imagery, to lead them captive by the magic of harmony, nor to hurry them away by energy of action; the accomplishment of these ends calls for endowments which none but the favourites of nature can boast."

Charles Caldwell was a physical giant, an adept with the sword and foil and an expert marksman with the pistol and rifle. He had but few equals in running, leaping and horsemanship. His carriage was erect and commanding. His head was massive and

well poised; his eyes, bluish grey; his mouth, large with thin lips set in a straight line. Courtly in manner, he practised his belief that "propriety, civility and courtesy of behavior" were the marks of good breeding. In personal habits he was most abstemious and regular.



CHARLES CALDWELL in his earlier years.
(From the portrait in the College of Physicians, Philadelphia)

The personality of Charles Caldwell lent itself admirably to the times. He classified himself as a "soul enamoured of conflict." Agnew has estimated him, "a man unquestionably of remarkable intellectual force, combined, however, with such incongruous elements of character as were calculated to defeat the best appointed plans of ambition." A contemporary commentary on his character is illuminating: "A man of handsome talents, but something of an evil nature is lurking about him, I suspect." His egotism was colossal. On one occasion he remarked that from the viewpoint of the phrenologist, there were three truly great heads in America, Webster, Clay and "modesty

forbids." He was the soul of inconsistency. Vindictive by nature and unbending in conflict, Charles Caldwell was destined to have his most cherished ambition shattered. This disappointment warped the vigorous mind of the virile young man and embittered his declining years.

Born of pure Hibernian blood in Caswell County, North Carolina, May 14, 1882, Charles Caldwell was the youngest of a large family. The parental stock is traced back to the French Colvilles, three scions of which family fled their native land for Great Britain with a price on their heads. One brother lost his life in the flight from France. From the remaining two, all the Caldwells of Great Britain and America have been derived. Of his mother's immediate ancestry nothing can be learned; we have only his statement that she was "of a family of highly reputable standing, but of no wealth." One of her forebears, Colonel Murray, in command of the cavalry at Pennyburn Mills before Londonderry challenged King James' cavalry leader, Lieutenant General Maimont, to personal conflict and, before the assembled armies, slew him.

The elder Caldwell was a man of great physical strength and personal beauty. Dependent on the meagre income of a younger son, he was forced through the increasing responsibilities of family to give up the military service and to seek his fortune in America. Sir David Caldwell, an older brother, remarked "that spendthrift young dog, Charley, if he did not break his neck in some of his freaks, or fall in a duel, or be killed in some other madcap affray, would yet be a general ay, and a brave one, too." Settling in Newark, Delaware, the Caldwells conducted a successful merchandise business, until the father attracted by the greater promise of agricultural pursuits took up land in Caswell County, North Carolina. Prosperity was again his lot and he became quite a man of affairs in

that state. He was one of the distinguished signers of the Mecklenberg Declaration and with two older sons served in the Revolutionary war.

Favored as a younger son and encouraged in his studious habits, Charles, junior, cultivated application and intellectual initiative beyond his years. In their frontier existence, instruction was most desultory and instructors, indifferent. His early tutelage was far from stimulating, with one exception: his first Latin teacher, the cadaverous Dominie Harris, sowed the seed of oratorical aspiration in the fertile mind of young Caldwell. The loss of his parents at the age of fourteen threw an unexpected financial burden on the boy. But undaunted he undertook the charge of Snow Creek Seminary, a grammar school near Bushy Mountains, North Carolina. In this capacity his natural discipline and aloofness from boys of his own age offset his extreme youth. Furthermore from this experience he gained mental precision and self-confidence. Before he had attained the age of eighteen, Caldwell was called to establish another preparatory school in North Carolina, Center Institute.

From the beginning, his education had been pointed toward the Presbyterian ministry. But "he had conceived a few opinions in religion deemed uncanonical, under the influence of which he could not, consistently with his sentiments of truth and honor, select and pursue the clerical profession." Further, while protesting his fidelity to the church, he urges, "Should scriptural tenets be opposed, therefore, to nature, they ought to be rejected, however venerable time may have rendered them, whatever sanctity they may have been supposed to possess on account of their source, or whatever authority they may have derived from the advocacy of divines and scholars, and the homage of Christendom." More bombastic is the following quotation in criticism of Noah's ark, uncanonical, indeed!

'Black Hole of Calcutta' was a paradise to it! . . . Yet Noah and his family and the hosts of animals enshrined with them in the horrid dormitory, without air, without light, and filthier far than the Augean stables, emerged from it in health, after a soaking in it of a hundred and fifty days!

We are told, by the fanatical defenders of the scheme, that the lives of Noah and his retinue were saved by miracle. By miracle, indeed, it was, and one of the most stupendous the Deity ever performed. And as easily, and in much less offensive style, could he have saved them on a few floating planks, a fleet of egg-shells, or the uncovered and obedient surface of the waters.

Excluded by these circumstances from the profession, for which he had prepared, Caldwell considered law, the military service and medicine. Law was rejected by reason of a pledge given his father. The advice of friends caused him to choose medicine in preference to military service. In later years Caldwell regretted this choice. "I have always considered my attachment of myself to the profession of medicine an injudicious measure. True, I have subsisted by it, done in it some good, accumulated some property and acquired some reputation. But it has in certain respects cramped my mind, limited the exercise of its faculties, and withheld me from a sphere of action to which I consider myself better adapted. My choice of a profession has been therefore unwise."

To further prepare for his medical education, he spent one and a half years in Salisbury, North Carolina, under the preceptorship of a Dr. Harris, brother of his old tutor, Dominie Harris. Unfortunately Dr. Harris, though a recent graduate of the University of Pennsylvania, possessed a very inadequate library. The time spent under his instruction Caldwell terms "the most unqualified and indefensible waste of time I have ever committed."

During Caldwell's stay in Salisbury, President Washington made a tour of the

South. His route on the return trip passing through Salisbury, it was decided to give him a fitting military escort and reception. After considerable preparation lots were drawn to form the advance party and Caldwell was one of the fortunate members of the company selected. Then he further was chosen to lead this party and to welcome Washington. To his utter chagrin on meeting the distinguished general he was struck speechless and could do nothing but salute in silence. Although Washington had, in the meanwhile, by his gracious courtesy put him entirely at ease, again on parting, Caldwell was too moved for words. Particular reference is made to the veneration in which Washington was held.

An episode in the Chestnut Street Theatre, Philadelphia, serves to emphasize this impressionable phase of Caldwell's nature. During a performance of "Alexander the Great," the murder scene so affected him that when the glittering dagger was drawn, he sprang to his feet and only physical force prevented him from disarming the actress. Of course, the climax of the play was interrupted and laughter greeted stage effects intended to be tragic.

In the choice of a medical school, Caldwell turned to Pennsylvania which during this period easily outranked all other medical schools in America. Her faculty by personal qualifications and training was superb. Shippen, Wistar, Kuhn, Rush, Griffiths and Hutchinson were outstanding names in that day. Furthermore, Philadelphia was the metropolis of the United States. In commerce this city far exceeded New York, until the pestilence of yellow fever in 1793 started the pendulum of trade swinging to the north. The placid atmosphere of the Quaker center fostered art and learning.

The opportunities for intellectual advancement in Philadelphia loomed as an oasis to the knowledge-thirsty youth. However, his ambition in oratory was not

stimulated by certain lawyers, distinguished for their powers of persuasion, nor by the style of certain notable clergymen of the city. But an extraordinary opportunity to study the style and manner of address of successful public speakers was afforded by Congress then in session. Flowery oratory was held in high esteem at that time and the spirit of emulation was strong in the young Southerner. James Madison was commanding the respect of the House by his pointed thrusts in debate. Ames was holding his audiences spellbound by the polish and brilliancy of his speeches. In fact, a more auspicious setting for the education of the ambitious youth could scarcely be pictured.

The medical school was opened in the autumn of 1792 by the inaugural address of the venerable William Shippen. But for his striking presence and suave personality, the uninteresting lecture, read in a monotone, must have left a poor impression. The subject matter was taken unaltered from Shippen's honored master, William Hunter, and dealt in a stereotyped manner with the composition of man. Tradition credits Shippen with the repetition of this lecture as his inaugural address without alteration or addition from the opening of the medical school until his death. The brilliance of Benjamin Rush's introductory lecture on the following day dissipated Caldwell's fears as to an injudicious choice of medical school. His impressive conversational tone carried the weight of conviction. Only when excited, did he wax eloquent. He possessed the power of stimulating his auditors. His enthusiasm was contagious. The concurrence of Rush in certain long cherished thoughts on the equality of Americans and Europeans led Caldwell to prepare a laudatory notice of the lecture. This article appearing in the *Aurora*, a newspaper edited by B. F. Bache, grandson of Benjamin Franklin, created considerable comment. The chair of the theory and practice of physic was occupied by Adam

Kuhn of disconcertingly punctual habits. Although trained under Linnæus and the elder Monro, his lectures directly derived from Cullen, were most commonplace. Caspar Wistar, as adjunct in anatomy and surgery, had not yet developed to his eminent position in practice or in teaching. Indeed in this stage of development, Caldwell claims his ability was as much underrated as in later years it was overrated. Hutchinson and Griffiths failed to impress Caldwell.

His habits as a student were most exemplary. He maintained an aloofness from his fellow students and followed a plan of life which reads like pages from Horatio Alger of our boyhood days. He occupied the same seat in lectures for the rather ignominious purpose of attracting his professors' attention. Particularly was he desirous of making an impression on Rush. In addition to his medical work, Caldwell read the classics and aspired to poetry and critical essays for public consumption.

His continued public notices of Rush's lectures created considerable comment in medical circles, particularly as to their authorship. By some channel Caldwell's connection became known to Rush, and through Rush's eldest son an invitation to tea at their home was tendered Caldwell. Rumor alleges that Rush made a practice of proselyting the more promising students to his theory of practice. However, Caldwell was completely disarmed by the cordiality of his welcome to the Rush home and vastly impressed by the high standard of their conversation. Under the nom de plume, Aretæus Jr., he continued his notices of the professor's lectures and soon began to supplement these by personal opinions of the matters under discussion. It was well known that Rush would not brook independence in either associates or students, and Caldwell was disconcerted to find an abnormal reluctance to discuss in his articles points of

difference of opinion with Rush. Ultimately, however, one of his public articles controverting Rush's theory of the unity of fever through a "convulsion of the arterial system" aroused the master's displeasure.

On the completion of his first course of lectures (1793) Caldwell planned a strenuous summer. When he submitted his schedule to Rush for advice, the latter protested against his lack of provision for relaxation. He undertook a course of lectures in botany and natural history under Barton; but a second course on the Brunonian doctrine of medicine was abandoned through "Dr. G's" (Griffiths?) unwillingness to defer the payment of the required fee. Clinical study at the Pennsylvania Hospital, together with scientific and medical reading, completed the work planned for this period.

The fall of 1793 with its horrible epidemic of yellow fever marks the gravest tragedy in the history of Philadelphia. Here, too, is written the most brilliant page in Philadelphia medicine. Preceded by a drought of three months, the pestilential flood suddenly broke loose early in August. In spite of all efforts the epidemic spread rapidly leaving untold dead in its wake. Business was suspended. The erstwhile crowded market places were deserted and quiet reigned save for the ominous rattle of the carts collecting the dead along the cobbled streets. Terror smitten, a large percentage of the population fled the city. With them passed a certain number of distinguished practitioners of medicine; but to the undying credit of the medical profession be it written that the epidemic was limited, and untold suffering relieved through the tireless devotion to duty of a less selfish majority of their fellow practitioners. Furthermore, the contributions of Benjamin Rush and others to the knowledge of yellow fever based on their experience in this epidemic were revolutionary. One member of the medical faculty, James Hutchinson, died a martyr to duty.

Had Charles Caldwell no other claim to fame, his conduct in the pestilence of 1793 and subsequent visitations of yellow fever in Philadelphia would assure him a place of honor in American medicine. Stranded by the removal from the city of two successive landlords, the young medical student volunteered his services as a nurse, without remuneration, in Bush Hill, the pest house of 1793. As an attendant he frequently slept in the same room and even on the same bed with fever patients, which experience converted Rush from his belief in the contagious nature of the disease. The opportunity for personal advancement was not lost on Caldwell, for, on the resumption of the meetings of the Philadelphia Medical Society in December 1793, he urged the domestic origin and non-contagiousness of the fever so effectively that he won the approbation of Rush. A division of the profession resulted on these points and strangely, with few exceptions, those who had deserted the city in its dire need were the defenders of the theory of a foreign origin.

The session of 1793 of the medical school was opened by Benjamin Rush with his memorable lecture on the epidemic of yellow fever. He painted a vivid picture of the desolation and hardships encountered. And further his famous "ten and ten" treatment was advanced. Naturally this radical therapy of ten grains of jalap and ten grains of calomel supplemented by appropriate venesection aroused a storm of opposition.

In the controversy which resulted over these differences of opinion, Caldwell took an active part. He eagerly entered the lists of public debate with the avowed purpose to "diffuse a belief in my fitness to become, in time, a professor of medicine." Not satisfied with the ordinary course of argument, he not infrequently took the obviously weaker ground so as to improve his powers of debate—a practice which proved

disastrous to him by reason of its self-hypnotic influence. Of Caldwell's diligence and sincerity of purpose there can be no question. He wrote that "a man destitute of medical literature and science, and undisciplined in composition, reading, and speaking, seated in the chair of a medical professor, constitutes one of the fittest of 'objects for scorn to point her slow moving finger at', and for all well qualified and high-minded teachers to treat with contempt." His indefatigable study of medicine and the classics, his analysis of the style of successful public speakers and actors and his close application to his chosen field all bespeak his depth of purpose.

About this time, Rush suggested to Caldwell the necessity for an adequate English text on physiology. Brooks and Cullen were both inadequate and the existing translation of Haller was indifferent. To meet the demands for instruction a new translation of Haller seemed advisable; but the appearance of Blumenbach's "Physiology" rendered its utilization more logical. To the difficult task of translating this text written in German Latin, Caldwell applied himself assiduously from March to September (1794). During this period he slept only three to three and a half hours daily and his diet was vegetarian except for milk and eggs. Broadsword exercise constituted his only relaxation. Caldwell's Blumenbach, published by Dodson, was early followed by an English edition by Elliottson, whose subsequent editions rightly appeared under his own name by reason of his numerous additions.

The arduous spring and summer left Caldwell very much worn out. So the outbreak of the Whiskey Rebellion in Western Pennsylvania came as an opportune diversion. The refusal of certain distillers in this mountainous district to submit to the levying of a revenue tax on their liquors constituted the first serious test of the stability of the Federal government.

Washington's prompt call of 15,000 men to arms from Pennsylvania, Virginia and New Jersey was an effective demonstration of the serious intent of the central government and the mutinous distillers were quelled without bloodshed. Caldwell served as surgeon to one of the Pennsylvania organizations during this campaign, but was given certain liberties on the line of march, which enabled him to take long tramps through the beautiful mountains along their route. Indeed, on the return trip he was virtually a free lance, appearing only at appointed places to meet his unit.

An episode leading to Caldwell's appointment as surgeon to this expedition is worthy of recounting, since its appearance in the "Autobiography" opened Caldwell to charges of gross inaccuracy. With much gusto, Caldwell details the catching of a runaway horse—himself figuring as the hero. Chance favoring him, the occupants of the carriage whose lives he had saved, proved to be the wife and daughter of "General G-r-y." From the depth of his gratitude at the happy deliverance of his loved ones from danger, the general readily acquiesced in obtaining the desired commission for Caldwell. Unfortunately for the acceptance of this dramatic incident, General Guernsey to whom Caldwell refers, had no children by his first wife and remarried in 1793. The nine year old child, affectionately termed Jane by Caldwell, whose life was saved in 1794, was not born until toward the close of 1795. The unequivocal descriptions and further remarks on the ripening of their associations into friendship preclude an alibi on the ground of the child's having been merely a friend of the Guernsey family. Further doubt is cast on the incident by the total ignorance of the two daughters of General Guernsey of such an accident; the first intelligence of which came through Caldwell's "Autobiography."

Returning to Philadelphia from this military expedition, Caldwell was surprised to

find himself lionized; and unable to live his customary life of a recluse, he lent himself to the social life and festivities in honor of the returning soldiers. Temporarily his ambition in medicine seems to have been lulled by the flattery of this attention from notables in public life. Ultimately, however, he came to a realization that his conceit and haughtiness toward men deemed his inferiors were alienating his associates. He asserts, "No sting penetrates so deeply, poisons so irremediably, or is remembered so interminably as that of contempt."

The breach between Rush and Caldwell, which had been threatened on the latter's public presentation of views on the unity of disease contrary to the master, was now rendered inevitable by Caldwell's resentment of Rush's utilization in lectures of his suggestion regarding the efficacy of cold water in the treatment of fever without crediting him with its origination. Caldwell's discovery, which antedates James Currie, came as the result of a drenching on the march west in the Whiskey Rebellion. In a letter to Rush addressed not from Lancaster, as Caldwell states in his "Autobiography," but from Bedford, October 20, 1794, this experience was detailed: "I was, to use a vulgar expression, wet to the skin, and had no opportunity of shifting my clothes for several hours. In consequence of this thorough bathing, and my subsequent exposure to a cool air, I was relieved from every symptom of indisposition in a few hours, and have enjoyed more than my usual stock of health ever since." This extract is contained in Rush's "Medical Inquiries and Observations" with, however, simultaneous mention of a personal experience and the quotation of Daignan's case of plague, which recovered after exposure to a rain storm. Caldwell sought redress for Rush's failure to credit him with the idea in his lectures by presenting a paper on the "Use of Cold Water in the Treatment of Fever" before the Philadelphia Medical

Society. Naturally the "theory guard," as Caldwell terms the adherents of Rush's principles, rose to his defence. Reports of the circumstance alienated Rush's interest in and support of Caldwell. Never afterward did the same frankness and mutual support characterize the intercourse between these men.

On the advice of the dean of the Faculty, Caldwell omitted mention of the cold water therapy from his inaugural thesis, which was defended May 17, 1796. Notwithstanding this concession there is reported a dramatic passage of arms between the distinguished professor of the theory and practice of physic and the candidate for the doctorate degree on the occasion of the latter's examination. The thesis, "An Attempt to establish the Original Sameness of Three Phenomena of Fever," was a decidedly mediocre and inconclusive production advancing the probable unity of etiology of "Hydrocephalus Internus, Cynache Trachealis and Diarrhoea Infantum." Caldwell derived from faulty reasoning that the three conditions were "noxious and exuberant branches from the same parent stock." Wistar magnanimously admitted the fallacy of his theory of oedema as arising from the gravitation of fluids along tissue planes, when Caldwell in this thesis advanced the debilitated state of the walls of veins as the more probable cause. Aside from this improved concept, any merit residing in the thesis lies in an interesting clinical observation on the diarrhoea of children. It "prevails only during the summer and the earlier part of the autumnal season; and seldom appears save in the foul and heated atmosphere of a crowded city. The pure and breezy air of country situations remote from marshes or other large bodies of stagnant water, so far from giving origin to this melancholy disease, affords the most efficacious remedy to such children as have already become the unhappy subjects of its violence."

According to Caldwell, Rush sought to interrogate him on the passage in his thesis as to the relief of fever by cold water, which had been deleted. Provost Ewing overruled Rush on this point. And then after a rather heated passage of words, Caldwell denounced Rush for using a spurious copy of the thesis. Rush, beside himself with rage, is reported to have asked, "Sir, do you know who I am, or who you are yourself, when you presume thus arrogantly to address me?" To which Caldwell answered, "Know you, sir? Oh, no; that is impossible. But as respects myself, I was this morning, Charles Caldwell; but indignant as I now am at your injustice, call me, if you please, Julius Caesar or one of his descendants!"

Some doubt is cast on Caldwell's account of this episode by reviewers of a contemporary period. For example, Samuel D. Gross ridicules even the thought of this effrontery to such a well-poised dignitary as Benjamin Rush. Another points to the improbability of a man of Rush's station being discomfited by a mere student. But regardless of the accuracy of Caldwell's narrative, it is a matter of historic record that Rush refused to sign his diploma until Caldwell apologized. Nor did he weaken in this resolution until importuned to overlook the matter several years later by David Rittenhouse.

The period following graduation found Caldwell active in practice and in the proceedings of the medical societies. He joined fortunes with the group of medical men splitting from the College of Physicians to form the Academy of Medicine. With Philip Syng Physick as president, Caldwell served as vice-president of this organization in 1798. He was re-elected to this office in 1799. In the proceedings of the College we learn that Charles Caldwell lost his fellowship in that body on January 4, 1803, because of non-payment of dues for three years. Caldwell's agitation through the public press and medical channels combined with the

efforts of Physick and Rush, resulted in the introduction of Schuylkill water into Philadelphia. The project was started in 1797 and completed in 1801. This rather extravagant system was replaced by a more economical plan in 1819. (Addendum A.)

During the trying period from 1793 to 1805 when yellow fever was constantly sporadic and seven times epidemic in Philadelphia, Caldwell was three times affected by the fever—"each successive attack," he remarks, "less severe than the preceding." The first of these attacks, in 1797, succeeded a period of marked literary activity in defence of Rush who was being shamelessly attacked for his advocacy of the local origin of the fever and his treatment thereof. By disguising his style and by swearing the editor to secrecy, Caldwell kept Rush in ignorance of the authorship of these articles—a circumstance which scarcely savors of sycophany. Caldwell's illness brought this series of articles to a sudden termination, and Rush, by this time suspicious of their origin, traced them to his door. With Physick, Rush attended him through this serious illness. The gingivitis resulting from his mercurialization persisted until all teeth were lost by 1836. This local condition, however, in no way affected his general health, and Caldwell further vindicates the use of large doses of calomel in yellow fever since it induces an "artificial cholera morbus" thereby "converting centripetal into centrifugal action."

Caldwell's observations on yellow fever are worthy of consideration. With the current belief of the day, he agreed that the pestilential fever was a severe form of autumnal fever. It arose from the putrid miasmata of marshes or decaying materials. Then, too, he held that meteorological irregularities of one kind or other were predisposing factors in the development of epidemics of yellow fever. His personal experience led him to reject the contagious theory of the spread of the disease; yet he

urged people to sleep above the level of the pestilential effluvia. His admonition to avoid night air was an unconscious step in the right direction. Without attributing a causative relation, Caldwell remarked on the swarms of insects, particularly mosquitoes, appearing concomitantly with the yellow fever. He felt that the insects were, as the fever, dependent on the putrid exhalation for their multiplication.

Caldwell entertained rather advanced views on quarantine regulations. As a member of the Board of Health, he was instrumental in having the inordinate period of quarantine of vessels at the Lazaretto reduced to the interval just necessary to properly cleanse the ships and to inspect passengers and cargo. This plan was later subscribed to by New York, Boston, and Charleston. His essay on quarantine won the Boylston prize at Harvard in 1834. The rigorous quarantine in countries surrounding Spain, when an epidemic arose in that country, evoked the following characteristic expression of sentiment from Caldwell: "Unless the pestilential constitution which appears to prevail in their atmosphere be done away; or a system of domestic cleanliness be rigorously enforced, as well might those nations attempt to countermand the laws of planetary attraction, or to stay, by the military guards, the course of the angel that rides on the whirlwind, as to set limits to the ravages of this calamity."

Organizations for the civic betterment of Philadelphia would do well to consult the "Memoirs of Charles Caldwell" published in 1801 for comprehensive suggestions in city planning and sanitary reform. He scores heavily the avarice which led to an abandonment of William Penn's plan for an ideal city. Particular reference is made to the congested river front, which by Penn's wise provision had been eliminated to afford Front Street on the high river bank a beautiful outlook over the Delaware.

Deceitful shortsightedness and cupidity frustrated this plan and Water Street with all its filth and squalor became the hot bed of disease. Caldwell urges the replacement of decaying wooden wharves by substantial and hygienic stone structures. The paucity of public squares and shaded walks is deplored. Inspection of slaughter houses and their removal from the crowded city are advocated. The filthy state of sewers, gutters and alleys is deemed scarcely conducive to good health. Caldwell points out that as early as 1762 Thomas Bond, in a lecture at Pennsylvania Hospital had warned that the filth of the city was capable of producing yellow fever. The unsanitary condition of graveyards and privies is declared appalling. The unhygienic state of Philadelphia at that time was in large measure due to the ill-founded complacency arising from the theory of the foreign origin of yellow fever.

To Philadelphians the following plan for the improvement of the League Island district has a most prophetic tone:

The clearing, draining and cultivation of that neighbouring and marshy tract of country, denominated the 'Neck,' is a measure calculated to improve the health of our city.

Lying but a short distance to the southward of Philadelphia, and giving origin formerly to an immense volume of marsh miasma, this subtle poison must have been necessarily conveyed to the city by the autumnal winds.

The cultivation of the soil has not only given a check to the generation of this poison, but has covered the surface of the earth with an abundance of vegetables, which absorb and convert it to their own nourishment. For vegetables act as the scavengers of the atmosphere, clearing it of such gases as are hostile in their nature to the health of man.

An additional step might yet be taken to give us greater security against the influence of the deleterious air in question. Were several adjoining lots to the southward and westward of the city, converted into a park or public garden, and covered with grove and forest trees, these lofty

plants would not only aid the inferior vegetables in devouring miasmata from the neighboring marshy grounds, but would also act mechanically in arresting the winds, which mingle this exhalation with the atmosphere of our streets.

As an essay on civic betterment and public sanitation, this work deserves a high rank. Were it not for the fact that the author at times sacrifices substance for rhetorical effect, the notice received would have been greater and the good achieved more lasting.

Caldwell belongs to that progressive group of American physicians who early put vaccination to the practical test of personal application. In a letter under the date of July 22, 1802, addressed to Lyman Spalding, Caldwell says that his personal experience with "Kine Pox," substantiated by that of his friends has been "sufficient to convince them of the power of this disease (if it deserve so harsh a name) to eradicate from the System a Susceptibility of Small Pox."

In 1803, Caldwell introduced clinical instruction into Blockley (Almshouse). He was not, however, as has been erroneously quoted, the first teacher of clinical medicine in Philadelphia. As early as 1766, Thomas Bond had delivered clinical lectures in the Pennsylvania Hospital. Caldwell seems to have submerged his differences with Rush at this stage of his career and for a time their relationship was more tolerant. He lost no opportunity of improving his mind or his teaching qualifications. With Rush's permission, he followed the professor through the wards of Pennsylvania Hospital giving bedside instruction to such students as were interested.

At Rush's instance, the editorship of the "Thesaurus Medicus," a compilation of theses defended by graduating students, was assigned to Caldwell. Primarily, Barton and Woodhouse, two junior faculty members, had been delegated to this task. Lack of cooperation and application between these two permitted the work to languish. (Addendum B.)

The first volume appearing under Caldwell's guidance in the autumn of 1805 was accorded a gratifying reception by the profession at large. His personal contributions to this volume on the "Vitality of the Blood" were lauded by Lettsom, Darwin and Beddoes. These observations on the blood were in truth elementary. As criteria of the vitality of the blood, he considered stimulability and the power of self-preservation. To derive this data, age, exertion, gases and physical measures, as electricity, were studied with relation to their influence on coagulation and putrefaction.

The opposition of Barton and Woodhouse led to the failure of the second volume in 1806. Furthermore, they engineered a movement among the students complaining of the unnecessary expense of the publication of their theses. In turn the faculty and trustees voted against the continuance of the "Thesaurus."

This circumstance was not, however, the primary source of friction between Caldwell and Benjamin Smith Barton, successively professor of botany and natural history, of materia medica and lastly of the theory and practice of medicine at Pennsylvania. Caldwell dates this feud to the plagiarism of his theory of the loss of pigment in a full blooded negro, Henry Moss by name, who was attracting wide attention in scientific circles in 1795. Barton had averred that the phenomenon was due to undue sweating. Later, however, he accepted as his own, Caldwell's explanation that the bleaching was due to a loss of the rete mucosum. Furthermore, Caldwell exploded the preposterous theory of the winter retreat of swallows entertained by Barton. On rather circumstantial evidence, the latter had taught that swallows hibernate in the mud at the bottom of lakes or in tree stumps. Then, too, Barton's miasmal theory of the origin of goiter fell under Caldwell's attack. In this refutation, his strongest point was made in calling attention to the

absence of malaria in Switzerland, the most goitrous country.

In Caldwell's personal estimation of Professor Barton, there are strange discrepancies between his "Autobiography" and his papers contemporaneous with Barton's life. Aside from a comment on his enthusiasm and the credit due his introduction of botany into the study of materia medica, references to Barton in the "Autobiography" are most depreciatory. In the "Memoirs" (1801), on the other hand, Caldwell ranks Barton as one of those "characters conspicuous for their talents and philosophical attainments." At that time his writings were characterized by "variety of matter and simplicity of manner—that richness and perspicuity." Such was Caldwell's consistency!

At Rush's suggestion, Caldwell made a translation of Senac's "Treatise on Remitting and Intermitting Fevers." In the dedication of this volume to Rush, he expressed the following felicitous feeling toward the master:

But I am actuated, also, by other considerations, which though more private and personal in their nature, are not with me less powerful in their operation. These considerations, were they to be even rejected by the judgment, would appeal to the feelings, and though repulsed from the head, could never fail to gain admission to the heart.

During an intercourse of some continuance, particularly during my medical pupilage and the first years of my practice as a physician, I received from you many acts of attention and courtesy, which as a young man and a stranger in the place, impressed me deeply at the time, and have still continued to be sources of grateful recollection. Out of these civilities, obligations naturally arose on my part, which our present situation has not yet allowed me to cancel. It is even possible that an opportunity of cancelling them may never occur. I must, therefore, beg your acceptance of this dedication as some acknowledgment of them, accompanied by my sincere wishes for a long continuance of your

health, happiness and useful labors. For however grateful, in the evening of life, the *otium in secessu honestum* may be to a philosophical and contemplative mind, I am unable to wish you such a retirement. It is enough that we should be deprived of your labors and services when you have gone to enjoy the reward of them in a better world.

October, 1805.

CH. CALDWELL.

Again in his history of the epidemic of yellow fever of 1805, Caldwell is most laudatory of his teacher. But certain developments renewed the gap between them and friendly intercourse was never again resumed. Caldwell believes this coolness to have resulted from his independence of thought and action. However, Rush's announcement of the opposition of certain faculty members to Caldwell and the improbability of his election to the chair of medicine at Pennsylvania would seem the more logical explanation for the break. Caldwell thus relates Rush's message: "Of your talents, attainments and powers in lecturing and instructing, they speak in the most respectful and flattering terms. But they are reluctant to recommend you to the Board of Trustees, in the light of a professor." A plan to divide the chair of medicine into the theoretical and practical branches, as advocated by Caldwell, was defeated.

Stung to desperation by the frustration of his plans, Caldwell first considered a professorship proffered him in the new school at Greenfield, New York, and later a chair in Baltimore. Unmindful of his injunction that "whatever injures the standing of the mother, falls like a blight on that of her children," he seriously contemplated the establishment of a new medical school in Philadelphia. Apparently he was only deterred in his plan by the dearth of kindred spirits to assist him in the project. It is interesting, by way of contrast, to note the following quotation from his "Thoughts on the Impolicy of Multiplying Schools of Medicine" delivered in Lexington some

thirty years later: "The selfish passions of envy, resentment, ambition, or the desire of distinction of a few individuals, should have no concern in their establishment." What a radical change of view!

Failing in his efforts to establish a new school of medicine, Caldwell next instituted a series of public addresses with the avowed purpose of refuting some theories cherished by Rush. He persisted in this campaign of iconoclasm against the strong opposition of his friends. His first attack was on the Brunonian hypothesis of life, which with certain reservations had been adopted by Rush. This doctrine, the product of the dissolute ingrate, John Brown of Scotland, deemed life to exist only as the manifestation of reaction to external stimuli and classified diseases on this basis as sthenic or asthenic. With all its vulnerable points it naturally offered a pregnable mark for Caldwell. However, one is surprised to find from time to time obvious adaptations of this principle to Caldwell's teachings. For example, in his "Memoirs," with reference to yellow fever, he states that it is a disease of excessive action, produced and continued by an excess of external stimuli. He concludes that it should therefore be treated by sedative or evacuant drugs.

Several days after his Brunonian lecture Caldwell attended a lecture in chemistry by John Redman Coxe. At the close of this lecture certain students manifested their displeasure at Caldwell's presence by hissing. Coxe, under the impression that the affront was meant for him, was disconcerted until Caldwell's name was called. In his account of the incident, Caldwell relates that he moved in the direction of the voice, saying: "I know of but three sorts of vermin that vent their spleen by hissing; an enraged cat, a viper and a goose, and I knew not till now that either of them infested this room." His further elaborations of the episode are termed

"deceitful reveries" by an eye witness. Indeed doubt is cast on the depth of Caldwell's emotion at the time of the unpleasantry, when he is reported to have remained unruffled and as he strode contemptuously over the benches to have remarked to the professor unconcernedly, "No animals hiss except snakes and geese."

Unsuccessful in securing a teaching position in the medical school, Charles Caldwell continued his attacks on Rush. In 1809, he rented a room close by the school in Market Street, above Ninth and advertised his lecture courses by stationing a servant at the entrance to the University with hand bills. (Addendum C.) The first few lectures were well patronized and then attendance waned markedly. Finally Caldwell moved to less presumptuous quarters in the Second Street Market House. A student of that period reports that with one other he formed an audience at one of the lectures there given. Shortly Caldwell gave up his attempt at private teaching, only to resume it in another luckless attempt after a short time. Letters of this period reveal his vexatious frame of mind. (Addendum D.)

With a rankling in his soul, this contentious Tom Touchy of Philadelphia medicine drifted from one controversy to another. In 1848 he confessed that "never since the year 1793 until the present date, have I been free from a contest against some opinions or doctrines which I consider erroneous." He seemed unable to eliminate the personal element from these controversies. His attack on Dr. Thomas Sewall in "Phrenology Vindicated" was particularly vituperous. (Addendum E.) Although justifying the charge of plagiarism against Sewall by the "deadly parallel" yet his personal affronts were unjustified and abusive.

One of his most unfortunate contentions was with the learned President Smith of Princeton. In answer to that distinguished

clergyman's essay on "The Causes of the Variety of Complexion and Figure of the Human Species," Caldwell launched a vehement critique, in which he maintained that climate and environment were incapable of inducing the differences of the various races. Smith resented this attack, and his early death was attributed by his friends to the bitterness of Caldwell's arraignment.

On one occasion, Haygarth of Bath aroused Caldwell's wrath by presuming to criticize the latter's address on the laws controlling epidemic diseases, delivered before the Academy of Medicine of Philadelphia. Caldwell, when rebuked by Lettson of London for his inconsideration of Haygarth's age, stated that Haygarth had observed "neither delicacy, decency, nor truth," and was therefore unworthy of consideration. This incident alienated Haygarth, but Lettson continued his correspondence with Caldwell.

Nor were all his controversies confined to matters medical. In 1803, Thomas C. James, by common estimate "an amiable, gentle and accomplished gentleman" who will be recalled as the first systematic teacher of obstetrics in America, accused Caldwell of altering the figure and date on receipts from the treasurer of the College of Physicians. He appealed to the governor of Pennsylvania to have Caldwell relieved from the Board of Health. Both were members of the staff of the Philadelphia Almshouse at the time; but its managers refused to be involved in a purely personal squabble. However, at the next election of staff physicians, Caldwell was dropped and James continued in office. Notwithstanding the action of the Board, Caldwell was still permitted to continue his clinical rounds and to teach in the hospital. James's early resignation from the staff leaves the question of equity open.

Caldwell's account of the circumstances surrounding the death of Benjamin Rush on

April 19, 1813 is most garbled. His insinuation that Rush died by his own lancet, is dispelled by James Mease who was present when Rush died. Dr. Mease, with Dorsey, Griffiths, Physick and James Rush, attended him in his last illness. Furthermore, Caldwell's divergent accounts of the circumstances surrounding Rush's death present an interesting study.

It is hard to reconcile the following diametrically opposing pictures as products of the same pen. In Caldwell's "Autobiography" it is stated, "Nor was the door of his dwelling surrounded during his illness by crowds of anxious and sorrowing inquirers after his condition, and the prospects of his recovery." Further, "No cloud of woe descended on the city sufficiently deep and dark to indicate the death of a great man, who had long been the pride and boast of the country—who had figured as a distinguished Revolutionary patriot, whose life had been a galaxy of the labors and deeds of philanthropy, and who had been for forty years the acknowledged cynosure of American medicine." From Delaplaine's "Repository of the Lives and Portraits of Distinguished American Characters," of which Caldwell was editor, we learn that "since the death of Washington, no man perhaps in America, was better known, more sincerely beloved, or held in higher esteem. Even in England, the tear of sensibility descended on his ashes and the voice of eulogy was raised to his memory." . . . "For nearly 3000 years past, but few physicians equal in greatness have appeared in the world; nor is it probable that the number will be materially increased for ages to come." Caldwell's subsequent effort at retraction on the ground of a temporary submergence of his better judgment in deep emotion, is inadequate in view of the effusive scope of his panegyric. His statement that no eulogist could be obtained to prepare a notice of Rush's death is apt to be misleading, unless one realizes that

the only available speakers of prominence, Chapman, Caldwell and Barton, were all personal enemies of the deceased. Ramsay of Charleston, wrote the only contemporary notice of Rush's death.

One of the inexplicable incongruities of Caldwell's life was his unswerving friendship for Nathaniel Chapman, who was virtually Rush's successor in the chair of medicine at Pennsylvania, Barton serving in this capacity for only two sessions. Naturally one would have anticipated a pre-conceived aversion on Caldwell's part to the man, who was to attain the high position to which he had aspired in vain. Yet Chapman and Caldwell were the Damon and Pythias of a stormy period in Philadelphia medicine, full of politics and intrigue—Gross to the contrary, notwithstanding. A fellow spirit existed between the two as evidenced by this sentence of a letter from Caldwell to Chapman, "It is certainly true that as teachers and disputants, we have for many years held our station in the first rank of battle." Chapman admitted that his election over Caldwell had depended in a large measure on the friendship of the Board of Trustees. Furthermore, the frankness in admitting Caldwell's superior qualifications and in enlisting his aid in the preparation of his early courses apparently won Caldwell's undying allegiance. In 1816, at Chapman's request, Caldwell prepared an American edition of Cullen's "First Lines of the Practice of Physic," and as evidence of his sincerity Chapman used it as the text in his courses for ten to twelve years. In Caldwell's words, Chapman filled the chair of medicine "with a degree of ability and distinction which neither praise can brighten nor condemnation make dim." "The professor's reputation is now an electron *per se*, that shines with no borrowed light, but with an innate luster, which makes an element of itself. And as a man he ranks with the most high-minded and honourable of our race."

Caldwell was much in demand as an orator on state occasions. It is recorded that "he spoke in long, well rounded periods, and in a great sonorous voice." Gifted with magnificent physique and commanding presence, "he was a model of a lecturer, walking to and fro upon the platform like a caged lion. He had practiced oratory before the mirror, possessed fine powers of elocution and had a mind well stored with professional and general information." One of his numerous public addresses of this period was an eulogy of Caspar Wistar. In spite of his personal high estimate of the effort, an auditor, Dr. Horwitz, reported to Lyman Spalding that the oration was better adapted to Bunker Hill than to the occasion of a death notice, and the speaker's style to a soldier than to a physician. Reference in this address to a successor to Wistar in their midst (Dorsey) has been construed to constitute duplicity on Caldwell's part, since he was said to have encouraged the candidacy of Lyman Spalding. In its published form the eulogy contains no such remark, so that the reported passage probably represents merely the extemporaneous effusion of the speaker. In the correspondence between these men (Addendum F) Caldwell frankly admitted the strength of Dorsey's position and the futility of competition, were he a candidate for Wistar's chair. However, at the same time Caldwell was known to have supported the candidacy of Warren of Boston for the vacancy.

Caldwell's literary bent determined his succession to Nicholas Biddle as editor of the *Port Folio*. This monthly journal attained a position of national prominence during the War of 1812 by reason of the semi-official accounts of military and naval affairs personally reported by prominent officers in both branches of the service. Furthermore at intervals, biographic sketches of notables in civil and military affairs made their appearance in this periodical. In 1819,

Caldwell published his "Life and Campaigns of General Greene," which was vigorously reviewed in the *North American Review*. A valuable biographic compilation of this period, Delaplaine's "Repository of the Lives and Portraits of Distinguished American Characters," was edited by Caldwell and still constitutes an important historical reference.

In 1810, he instituted a course of lectures on medical jurisprudence; these were among the first delivered on this subject in America.

The establishment of a faculty of physical sciences in 1815 created a chair of geology and the philosophy of natural history, which Charles Caldwell sought as is evidenced by his letter to Lyman Spalding requesting a recommendation for the place. Whether a sincere desire to utilize Caldwell's talents as a teacher, or, as he suspected, an effort to prevent the diversion of students from Philadelphia by his proposed removal to the West, prompted his appointment is immaterial. His was an unruly tongue, and it is possible that this professorship may have been granted as a placebo to placate his ruffled feelings. Of the appointees to this faculty, only Cooper and Caldwell delivered the proposed courses of lectures, which were semipopular and attracted large and appreciative audiences from the city. Four courses were given in the three years of Caldwell's occupancy of the chair.

In a letter to Dr. Brown of Lexington, Kentucky, Caldwell urged the advisability of establishing a medical department at Transylvania University. This letter, presented to the Board of Trustees, was favorably acted upon. As a result, Caldwell was called to the chair of the institutes of medicine and clinical practice in August 1819. His appointment was in a measure enhanced by the favorable impression made by his Wistar eulogy on President Holley of Transylvania. Caldwell left Philadelphia, October 6, 1819. He remarks that on his arrival in Lexington, he found the country

as barren medically as Boone had found it agriculturally in the pioneer days. Caldwell was made the dean of the medical faculty, which constituted three "medical ciphers" and a fourth more useful professor, Dudley, who, though less talented, was a good worker. On the occasion of his inaugural speech, Caldwell was addressed by President Holley and answered him in Latin—"an expedient not without a salutary effect." In the body of the address, which was delivered in English, Caldwell developed the subject of the necessity and advantages of a school of medicine in Lexington.

Handicapped by lack of funds, books and essential equipment, Caldwell appealed to the Legislature at Frankfort in January for ten thousand dollars. One-half of this sum was granted, and it was further supplemented by six thousand dollars from the citizens of Lexington. The summer of 1820 was spent in propaganda work for the support of the new medical school. He toured the Mississippi Valley and adjoining states in search of candidates for admission. He also visited Philadelphia and New Orleans to secure materials and equipment for instruction during the next session. The second class was twice as large as the first, and by the session of 1826, Transylvania had attained the position of the second largest medical school in the United States.

Between the second and third sessions of the Medical Department of Transylvania University, Caldwell went abroad in search of books and materials for teaching. His observations on the personalities of notables with whom he came in contact are most interesting. In characteristic style he describes the elegant, impressive Sir Astley Cooper, whose mental attainments were, in Caldwell's opinion, beneath his reputation. The brusque John Abernethy, on the presentation of a letter of introduction, rebuffed Caldwell and was taken aback by Caldwell's prompt and unceremonious

withdrawal. Piqued by what he termed "quick-on-the-trigger" behaviour, Abernethy, nevertheless, made due amends and they parted friends.

France had not yet recovered from the disorder of her Revolution at the time of Caldwell's visit, and this circumstance facilitated his quest of medical literature. Rare and valuable editions either by the looting of libraries or the grim pressure of poverty had found their way to lowly bookstalls. But aside from his unexpected success in this direction, Caldwell enjoyed a wide social and medical acquaintanceship. Among his medical associates may be mentioned Cuvier, Dupuytren, Baron Larrey and Alibert; letters to LaFayette, Marquis Marbois and Marshal Grouchy also gave him social entrée.

The session of 1836-37 was a stormy one at Lexington. Two years after Caldwell's forceful address on the "Impolicy of Multiplying Schools of Medicine," in which he had denounced the possibility of Louisville as a medical center, he was engineering a movement to transplant the medical faculty from Transylvania to that city. The slow growth of Lexington was urged as a leading argument to effect this move. The secret agreement of the faculty to his plan met an unexpected obstacle in Dudley's announcement that anatomical materials would not be available in Louisville. An open split in the faculty resulted and Caldwell was the scapegoat. Those who had broken faith with him openly contested the project, while his adherents hid behind him and gave him no open support. In his valedictory of March 15, 1837, Caldwell vigorously attacked Dudley, who in turn brought charges of conspiracy against his assailant. Failure to respond to the summons of the Board of Trustees resulted in Caldwell's official dismissal from the faculty, a formality rendered pointless by his removal to Louisville some time previously.

Facilities for medical instruction were very limited at Louisville. Furthermore, the Louisville Medical Institute was openly opposed by the medical schools of Cincinnati and Lexington. Yet turning his back to his assured position in Lexington and flattering offers from Cincinnati, Caldwell chose to face the obstacles necessary for the establishment of a new school in Louisville. Again he carried the question of the financial support of the project to the townspeople. They subscribed twenty thousand dollars of the twenty five thousand dollars requested. After consultation with the Board of Managers, Caldwell was assigned to the chairs of the institutes of medicine, medical jurisprudence and clinical medicine, and Miller to the chair of obstetrics. Later, on Caldwell's recommendation, Yandall was appointed to the professorship of *materia medica*; Cooke, to the theory and practice of medicine and Mitchell, to chemistry. In the East, Caldwell induced Flint to join the faculty, but he proved inefficient through lack of application. An affiliation of Louisville Marine Hospital with the Medical Institute was effected by Caldwell. Then at his own expense he went to Europe in the interest of the school, and from personal funds procured considerable materials for medical instruction.

Appreciating in a measure the disadvantages of his age, in 1846 Caldwell confided his financial circumstances to the individual members of the Board of Managers, and indicated his desire to retire in 1850, by which time certain business arrangements would have materialized to assure him a comfortable income. Apparently he was ignorant of the resolution of the Board to dismiss him in 1847, which had only been defeated by the active opposition of Henry Miller and Samuel Gross. Unwilling to defer this action longer, in 1849, against the urgent counsel of his friends, in the faculty, Caldwell was discharged by the

Board. Naturally the old gentleman scented intrigue and charged Lunsford Pitts Yandall with leading a conspiracy against him, the basis of the plot being professional jealousy. Caldwell involved Henry Miller, Samuel D. Gross, Charles Short, Jedediah Cobb

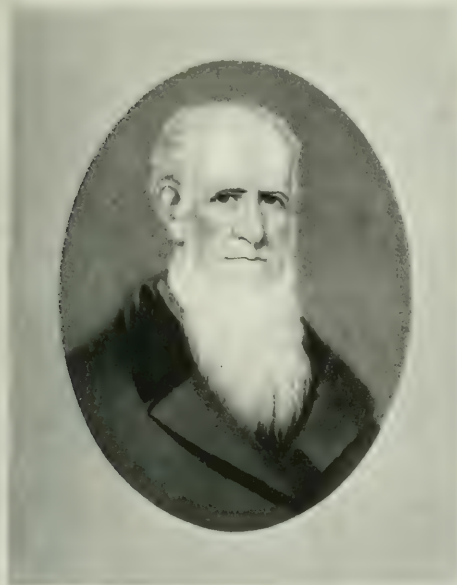
are refuted in Yandall's answer by direct quotations from Caldwell himself. Furthermore, the constitution and by-laws of the medical faculty, to which Caldwell had subscribed contained a clause of majority rule and set the age limit at 65 years.

Yandall then showed that Bartlett had been the first nominee for the vacancy created by Caldwell's dismissal.

In desperation and chagrin, Caldwell vainly sought reparation in public debate with any professor in the institute on any subject. The querulous old man interrogated members of the faculty on the cause of his removal, and age was the only reason assigned. He spurned the proffer of any academic honor from the medical school. According to Gross, he left Louisville to establish himself in Nashville where he attracted a small following; but no mention of this change of residence is found elsewhere.

The views regarding Caldwell's ability as a teacher are widely divergent. Samuel D. Gross affirms that while he was well liked by the students, he was a poor teacher. In his teaching, he supplanted medicine by philosophy and phrenology. Furthermore his methods were twenty-five years behind the times. Gross adds: . . . "I doubt that he ever made a physiologist of any of his pupils. He was a declaimer, a speculator, not up to the existing state of science, notwithstanding his learning, and he was therefore a miserable teacher." Lunsford P. Yandall, a favorite student at Lexington in 1823,

but scarcely an unbiased witness in later years, remarks that Dudley and Drake were even then more popular teachers than Caldwell. "Students, in truth, generally turned listlessly away from his polished discourse on Sympathy, Phrenology, the Vital Principle, and other kindred themes, and hurried off to the lectures on *Materia Medica* and *Anatomy*." Years seem to have mollified Yandall's natural resentment toward



CHARLES CALDWELL in his later years.
Engraved from a painting by J. R. Lambdin.

and Daniel Drake in this cabal. Of the last mentioned, he says "a gentleman very highly and justly distinguished for his powers of mind and useful attainments; and unfortunately not less so for his propensity to strategy and intrigue, which marred his usefulness and darkened his fame."

His attack on Yandall charged duplicity, mediocrity and scheming to advance personal ambitions. Most of Caldwell's accusations

Caldwell's attack and he later (1875) refers to his old patron as possessing qualities of person and mind "rarely equalled by a teacher of medicine." Juettner declares that "Caldwell was distinctly a man of prejudice, very voluble and with a marvelous facility for eloquently getting away from any subject he was discussing." On the other hand, David W. Yandall states, "He taught the physiology of his day, which was then largely the physiology of the ancients, but he taught it in so impressive a manner that his classes received it as gospel and voted him its greatest expounder." The testimonial of his last class at Louisville is a real tribute to his ability as a teacher. (Addendum G.)

Caldwell's views on medical education, while in the main the product of the day, are quite interesting. He maintained that only men trained in a certain district were capable of treating the diseases of that neighborhood. While admitting the advantages of hospital experience to small resident classes, he adds that "in whatever light it may be viewed, hospital practice, held out, as a lure to attract a large winter class, is a dishonourable hoax." The establishment of new schools would lead to a reduction in the size of classes; and he states, "It may be received as a maxim, that a medical school discouragingly limited in its classes, will be correspondingly limited, not to say actually superficial in its teaching, and cannot therefore be the parent of accomplished physicians."

Converted to a belief in phrenology by Gall and Spurzheim on his visit to Paris in 1821, Caldwell introduced this fallacious principle into medicine in America. At one time he remarked that through the study of phrenology "mankind at large are destined to receive, through all coming time, benefits and blessings of a magnitude and multiplicity which no human sagacity can compute." Caldwell advocated trephining in the treatment of mania on the basis of

phrenology. He lived to see the whole fabric discarded.

Strangely, Caldwell was a disbeliever in chemistry which he termed "that speculative science," a flight of fancy and a lineal descendant of alchemy. He remarks, "Even at the present day it is hardly short of lunacy to contend, as many chemists do, that chemical and vital forces are identical." Again he states, "it will require stubborn facts to convince me that man with all his corporeal and intellectual attributes, is nothing but a hydrophosphorated oxyde of azote." One of his most interesting allusions to his disbelief is contained in the following quotation: "I have never opposed microscopical or transcendental philosophy, in the true sense of the term. It is chemical philosophy I have opposed, that mongrel nondescript branch of science—no, not of science, but of blunders and balderdash—which identifies man in function with a German stove, or a Belgian beer-barrel."

Charles Caldwell was withal a man of wide interests and keen powers of observation. At an unexpected juncture is found a reference to the tremendous latent possibilities of Niagara Falls as a source of water power. An address before Miami University in 1832 presented the plea for a national university. Although a Southerner by birth, Caldwell prayed that the Union be held "as steadfast as nature and as lasting as time!" His essays on physical education and prison discipline enjoyed a wide circulation on both sides of the Atlantic. As to the city of Washington, he remarks that "the streets are too wide, and the buildings too low, to furnish any protection against the solar rays" with the result "that the summer temperature of its atmosphere will be but little below that of the inhospitable desert of Zaara." As early as 1801, he advised cold baths as an invigorating measure to counteract "that relaxation and lassitude so universally experienced during the intensity of our summer

heats." He then appealed for a regulation of diet, dress and drink to meet changes in external temperature. Caldwell strikes a singularly modern note when he deploras the dependence of American women on European oracles of fashion: "This unfortunate preference of fashion to reason . . . to common sense, in dress, cannot fail to prove occasionally destructive to delicate constitutions."

Of his intimate family life but little can be learned. He married twice, having divorced his first wife. A son by his first marriage attended Harvard and Caldwell deferred his removal from Philadelphia to Kentucky until the completion of his course at that institution.

The old gladiator was afflicted with erysipelas in May 1853. The local condition cleared up, but he never rallied completely; and although remaining mentally alert, he succumbed on June 9, 1853 in Louisville. He lies buried in Cave Hill Cemetery, Louisville, near the scenes of his last conquest and defeat.

Charles Caldwell was by Nature's gift and personal attainment a marked man of his day. Yet grim Fate, ably seconded by the machinations of his own morbid spirit of controversy, has construed to almost submerge him in the oblivion of time. Had he practiced his own preaching that "every man when in health, may, if he please, bridle his tongue," Fortune would have dealt more kindly with him. In his writings the gem of truth and the germ of discovery are so buried in the chaff of verbosity and the maelstrom of combat as to be largely lost to posterity. Of such it has been written, "For they have sown the wind and they shall reap the whirlwind." Early denied his fond ambition to succeed Rush in the chair of medicine at Penn-

sylvania, Caldwell's outlook on life was embittered and his attitude toward his associates seemed to invite antagonism rather than friendship. Active in the foundation of two medical schools beyond the Alleghenies, the unfortunate decision of the Board of Managers at Louisville snatched his hard earned laurels in the evening of his career. Fighting to the end, the battle scarred veteran recalls Henley's words,

Under the bludgeonings of chance
My head is bloody but unbowed.²

ADDENDUM A

The incorporation of the Delaware and Schuylkill Canal Navigation Company on April 10, 1792 represents the first comprehensive project to supply Philadelphia with water. Its plan to carry water by a canal along the east bank of the Schuylkill from any point below Norristown was finally abandoned as impracticable. However, the recurrence of yellow fever epidemics led to repeated petitions to the Legislature and City Councils for an adequate water system. Benjamin H. Latrobe proposed to pump water from the Schuylkill throughout the city by means of a steam engine. His plan won in the face of vigorous opposition and in 1801 water was delivered to hydrants in various parts of the city through wooden pipes. In 1815 the water works were moved from Chestnut Street to Fairmount. Wooden water mains proved very expensive and their replacement with iron ones began in 1818. The water system of Philadelphia was further improved by the completion of the dam and the water wheels in 1822.³

June 27, 1804.

ADDENDUM B

I do solemnly certify that some time towards the close of the year 1802, or early in the year 1803, Dr. Woodhouse signified to me in unequivocal terms, (and spoke with considerable warmth on the occasion), that a volume of years, taken from the portrait in the College of Physicians, Philadelphia, the author is indebted to Dr. Francis R. Packard and Mr. Charles Perry Fisher.

³ Abstracted from Current Topics, *Public Ledger*, Philadelphia, August 14, 1919.

² To Prof. William Snow Miller grateful acknowledgment is made for his continuous stimulating interest and material assistance in the preparation of this biographical sketch. For the photographic reproduction of the painting of Caldwell in his earlier

medical Theses, to the selection and superintendence of which Dr. Barton and himself had been appointed by their colleagues, the medical professors, *would never be completed*. I forbear relating the reasons which he assigned for this, as a promulgation of them would not be well calculated to promote harmony between him and Dr. Barton. What led to a conversation on this subject was, a *failure on the part of Dr. Barton* to comply with an engagement into which he had some time previously entered with Dr. Woodhouse and myself, to join in conducting a work somewhat on the plan of the Medical Repository.

I do further certify, that as late as last winter (I think it was in the month of February) Dr. Woodhouse told me, that in case of his meeting with an opportunity which might please him, he would probably *make a visit to Italy during the present summer*. A voyage to a distant country is not very compatible with the confinement and drudgery of an editor in the United States.

CH. CALDWELL.

ADDENDUM C

This afternoon immediately after Dr. Physick's lecture at the County Court house, South East Corner of 6th & Chestnut Street.

Dr. Caldwell will lecture on

Lunar influences in producing diseases.

The lecture to conclude with some new views on the subject of menstruation.

The medical class in general is invited to attend. Please to make this notice public.

Monday, January 8, 1810.⁴

ADDENDUM D

July 14, 1812.

You ask, what, medically speaking, we are doing in this city. I answer: Nothing. Nothing, I mean, towards promotion of the medical literature of our country. For at least six months past, so completely nauseated have I been with the sycophancy and subserviency of our physicians to the dogmas of a certain character (who, a footnote relates, was good Dr. Rush, detested

⁴ Among Lyman Spalding's papers, was found this notice of Caldwell's lecture posted at the entrance to Dr. Physick's lecture room (Words from "Lunar" to "Menstruation" were written in.) The handwriting is like Caldwell's.

for success and universal admiration—Ed.) whose name I will not, because I need not mention, that I have, during that period abandoned medical reading as well as writing, and amused myself with polite and classical literature (Life of J. Smith and one of Commodore Barry). It is likely, however, that the winter will bring me back to my former habits.⁵

ADDENDUM E

Dr. Sewall's two lectures . . . were conceived about the year 1825 and 1826. Ever since that period, the Professor has been in protracted, and no doubt painful gestation and parturition of them; and his safe delivery is but of recent date. What less then could he expect of them, than that they would issue from the travail of his aching brain, like Minerva from the brain of the ruler of Olympus, adult in stature, full fraught with wisdom, "clad all in steel," and prepared for the highest and deadliest doings! And how miserable must be the disappointment, and how piteous the condition of the doating parent, when he shall find that instead of giving birth to a paragon of wisdom and war, he has incurred "the sharp toothed" sarcasm of the satirist: "*Montes parturiunt, et mus ridiculus nascitur!*" And the mouse shall be forthcoming.⁶

ADDENDUM F

CALDWELL'S LETTERS TO LYMAN SPALDING
Dear Sir:

I have delayed replying to your last letter until I should have something to say, on which reliance might be placed.

Dorsey will, I apprehend, ask for the chair of Anatomy. If so, all competition may cease. He will certainly carry it from any competitor. It would afford me pleasure to serve your interest in that or any other respect. But where there is no chance of success, it would be uncandid in me to offer any encouragement.

From my friend, Mr. Reuben Haines, who will be in New York in a day or two, and whom I beg permission to introduce to your acquaintance, you will receive a copy of an Eulogium,

⁵ Spalding, Dr. James Alfred: "Life of Lyman Spalding," Boston, 1916.

⁶ Caldwell, Chas.: "Phrenology vindicated in a series of remarks, physiological, moral, and critical." November, 1834, *Christian Economy*.

I had the honour to deliver, a few days since, to the memory of poor Wistar.

My time was too short and otherwise too much occupied, to do justice to the subject; which indeed, no time, perhaps, would have enabled me to do. Such as the performance is, however, I beg you to accept it, and to believe me, in perfect truth,

Dear Sir,

Your friend and obedient servant,
Philada., March 3rd, 1818. CH. CALDWELL.

Philada., Nov. 16th, 1818.

Dear Sir,

Let me hasten to inform you that arrangements are already made for Dr. Physick to supply the vacancy in the Anatomical chair of our medical school, during the present session.

On the subject of a permanent successor to that chair, nothing is yet done and, as far as I know, but little thought of.

I shall, notwithstanding, have the pleasure of making known the purport of your letter, conformably to your request.

Should any determination in your favor be made, intelligence shall be communicated to you without delay.

Present me to Mrs. Spalding, and believe me, very sincerely,

Your obedient servant,
CH. CALDWELL.

ADDENDUM G

Louisville, March 6, 1849.

We, the undersigned, members of the graduated class of the Medical Department, University of Louisville, for the session 1848 and '49,

unanimously adopt the following preamble and resolutions:

Whereas, we have attended the lectures of our venerable Professor of the Institutes of Medicine for two sessions; and whereas, in all human probability, he will not continue many years longer to hold his place in the University, which we are proud to cherish as our alma mater; therefore—

Resolved, 1st. That we feel it to be our privilege and take great pleasure in expressing our high regard for him, as a man of profound learning, and one of the ablest advocates and most efficient teachers of the medical profession.

Resolved, 2d. That his lectures on all the subjects pertaining to his chair, have been able, thorough, and instructive; and that the imputation, therefore, that he is superannuated, or that his lectures are, in any way inferior to those of the other professors, is unjust, unfounded, and false.

Resolved, 3d. That, in consideration of the deep interest he has always manifested in our advancement in the study of the philosophy of medicine and his untiring efforts to promote the same, we deeply regret the prospect of his vacating his chair, which he has so long and so ably filled; and for his courteous and affable manners to us as pupils, and all the kind attentions we have received from his hands, we tender to him the grateful thanks of his affectionate pupils and humble servants.

Signed in behalf of the class by

W. W. McCOMAS
J. RODMAN
F. L. MADDEN.

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LAFAYETTE HOUGHTON BUNNELL, M.D., DISCOVERER OF THE YOSEMITE

By HOWARD A. KELLY, M.D.

BALTIMORE, MD.

FEW great discoveries have passed into history without the controversy of conflicting claims, whether it be the discovery of an America or of a telephone, of antisepsis or a Sims's speculum, or the operation for fistula. The thoughtful student of history will, I think, conclude that there is often much to be said in justification of many of these forgotten priority disputants, and that almost invariably some meed of credit denied by a careless posterity is their due.

The busy working world, dramatic in its impulses, and too pressed to stop to analyze claims to adjudicate varying degrees of merit, gladly seizes a prominent, much advertised name which has caught its fancy and adopts that as the best peg for memory's facts. If, as with Marion Sims in his vesicovaginal fistula operation, the world learns that he has persisted through years of discouraging effort, and through thirty or forty operations on a poor negro wench until at last the success, which had eluded centuries of effort, crowns his skill, and if it then sees him quit his plantation home and journey abroad to teach the great surgeons of the world how to operate, and then to cap the climax beholds him bemedalled and honored by kings, queens and potentates, while arousing the jealousy of eminent competitors—then the world gives a sigh of satisfaction and rests content, and writes that name down on the page of history as the indisputable claimant. Usually the world is correct in its estimate, but it still remains the grateful task of the student of history to scrutinize more closely the events leading up to the great discovery and to assign varying degrees of merit to forgotten heroes who have toiled to lay the foundation on

which to erect the monument. I do not note that this subsequent investigation of the contributing factors with the assigning of a share of credit to others has ever yet hurt the principal claimant; rather is his merit enhanced as he stands thus *primus inter pares*.

With these obvious and salutary reflections I would lead up to a matter in which, among other claimants, not too pressing, the true discoverer has been forgotten, and I would here reassert his claim to an important discovery; I refer to Lafayette Houghton Bunnell, M.D., the discoverer of the Yosemite Valley of California in the year 1851. The importance of the matter lies in the fact that in all this vast country there exists no such remarkable grandiose scenery as in the Yosemite; we are glad, therefore, to hail a fellow craftsman as the one whose imagination was first fired by the mystery of the park, who kept it in mind and eagerly embraced the first opportunity to enter, and who journeyed in with a juvenile enthusiasm and then and there proposed its name—"Yosemite."

I will relate how my interest in Bunnell was awakened, and then give his history, and summarize his claims.

Dr. William Browning, the well-known neurologist and bibliographer, wrote an entertaining paper entitled "Some of our Medical Explorers and Adventurers."¹

In the *Medical Record* for November 23, 1918, appeared a letter from Dr. H. E. W. Barnes, of Santa Ana, California, in which, after expressing his interest in Dr. Browning's article, he regrets the omission of Dr. Bunnell's name, cites his achievement in the Yosemite and states that "he wrote a book on this

¹ *Med. Rec.*, October 26, 1918.

discovery that is a frontier classic. To him and his courageous companions forever will remain the honor of first visiting this mysterious valley and making known to the world the majesty and splendor of its unsurpassed scenic beauty. . . . It would be scant justice to the memory and merit of the intrepid Dr. L. H. Bunnell if his name is not included in the list of Dr. Browning's immortals."

Inasmuch as there was here clearly a chance to enhance the honor of our profession, I wrote at once to Dr. Barnes, to Dr. Browning, to the publishers of Bunnell's book, to libraries in localities where the name of Bunnell might be known, or where large collections of books might be found, and to many individuals. Replies were courteous, but for some time absolutely no information was forthcoming; Bunnell seemed to be but a name, almost a myth, although the author of an interesting book. In time, tiny clues rewarded persistent efforts until gradually from many threads has been woven a complete history of this man who was the means of bringing to notice this wonderful *terra incognita*.

Lafayette Houghton Bunnell was born in Rochester, New York, in March, 1824, son of Bradley Bunnell, a physician, and Charlotte Houghton. Bradley Bunnell, the father, was born in New London, Connecticut, in 1781 and seems to have lived in different places in New York State. In 1828 he had been in Detroit, Michigan, practised medicine, had made friends with many of the early pioneers, and purchased land. His name appears in the Detroit city directory for 1837.

Lafayette's mother, Charlotte Houghton, came of the family after whom Houghton Square, London, was named. She was born in Windsor, Vermont, daughter of James Houghton and granddaughter of James Houghton, patriot in the American Revolution, who was killed by a Tory in a local affray. Douglas Houghton, dis-

tinguished naturalist and physician, was a cousin of Charlotte Bunnell's; he was born in Troy, New York, September 21, 1810 and from his youth was interested in nature. He experimented with percussion powder (but lately invented), and bore the marks of an explosion. He graduated at the Rensselaer Polytechnic Institute and was afterward a member of the faculty. In 1831 the Medical Society of Chautauqua County gave him a license to practise, and he went as physician and botanist on the Henry R. Schoolcraft Government Expedition to explore the sources of the Mississippi River. He had an extensive knowledge of the flora of the northwest, practised in Detroit from 1832 to 1837, projected the Geological Survey of Michigan and was appointed state geologist. In 1838 he gave scientific lectures at Detroit, and was mayor of Detroit in 1842. While at work on a new government survey he was drowned in a heavy sea in Lake Superior, October 13, 1845.

This man was an inspiration in the life of Lafayette Bunnell, who tells of listening to his stories of adventure, declaring that "these conversations were overheard by an observant child of good memory, and they made him ambitious of adventure, and just a little romantic. They were not the least injurious from a moral point of view, for he thought to emulate Dr. Houghton in usefulness, but alas for boyish imaginings. Dr. Houghton's skill as a geologist pointed to millions hidden in the earth, and he was drowned in Lake Superior, a victim to its angry waters, on its rock-bound shores."

Another kinsman of Mrs. Bunnell's was Edward Houghton "to whom was conveyed the supposed title of Jonathan Carver to the vast area known as the 'Carver tract.'"

Dr. Bradley Bunnell (the father) and his wife had twelve children, six of whom died in childhood. In 1832, when Lafayette was

eight years old, the family moved to Detroit, then a small French village, mostly dependent for its trade upon furs and peltries, and a gradually increasing demand for the white fish caught in the river. Another source of revenue was the lumber—pine and black walnut—cut from the virgin forests. Bunnell says: "Eastern settlers began to come into the then new territory to occupy a part of the large area of vacant land, and, with their arrival, some money was put in circulation, but there was a good part of trade carried on by means of barter."

Just before going up to Detroit, Lafayette had Asiatic cholera and remembered "its outbreak among the soldiers of the regular army on their way to take part in the Black Hawk War." General Winfield Scott commanded the soldiers who were going to Fort Dearborn and several were quarantined at Detroit.

Lafayette went to O'Brien's Catholic school, because "it was the best," although he was not a Roman Catholic. He tells of attending the funeral services of the Reverend Gabriel Richard, "Good Father Richard," founder of the Indian Missions of the Lakes (September 13, 1832), and says that Father Baraga, famous for his good influence over the Ottawa and Chippewa Indians, and Father Richard were looked upon as saints. He recalls the sober Ottawa Indians "converted to an honorable religious life, by the Catholic Missionary Fathers," becoming "victims of their appetites for raw whiskey, that they drank not as most white men drink, but poured down their throat until oblivion cast its mantle over all that was human in their actions. At that date . . . and after . . . the Ottawas, and the older Chippewa bands of the upper lake region, assembled at Detroit to receive the annuities given them by our Government, and then, some of the Indians of the same bands would cross over to the Canadian shore of the strait, and there receive the subsidy that the British policy had continued as a

reward for their services in scalping Americans, and harassing our frontier during the war of 1812."

Bunnell was in close sympathy with Indian and mixed-blood boys and French traders, and boasts, "I was vain enough not to allow an Indian (*for I was a white American*) to do what I could not. Or if he did, it was not for long, for I practised his art of swimming in the swift cool current of the Detroit river, paddled his birchen canoes until I could excel him in speed and endurance, and when the ice formed on that treacherous stream, I would skim over the thin ice on skates where his instinct would not allow him to venture. My folly, upon one occasion, met its reward in a very cold bath in the river, during which I was nearly drowned, but the lesson I remembered. The spirit of rivalry soon extended to my French boy companions, and the result was that, by this close association, I soon 'picked up' a pretty good knowledge of bad French and some good Indian."

He knew well the families of the "old French fur traders," particularly Old Daniel Campau and his brother Barnabas. Old Daniel had accompanied General Cass to the sources of the Mississippi in 1820, then became a trader and invested largely in land. "The Cass farm and the Campau lands comprised the greater part of Detroit" at that time.

John B. Desnoyer was a "fur trader of long experience," whose daughter Matilda married Willard Bradley Bunnell, brother of our Lafayette. She was a splendid type of pioneer woman, refined, domestic and modest, yet brave and ready to meet emergencies. She could converse fluently with the Chippewas, Winnebagoes and Sioux and knew something of other dialects, and the Indians "respected and feared her although only a 'woman.'"

Family reverses forced young Bunnell to leave school and go to work with Benjamin

LeBritton, a druggist in Detroit. He was boarding at the American Hotel and, after it was destroyed by fire, at the Wales Hotel erected on its site. Here lived Henry R. Schoolcraft with his invalid wife and her Indian maid. With the maid Bunnell used to talk Chippewa; finding that her dialect differed from his, she explained it by saying that his Chippewa was French Chippewa while hers was real *old* Chippewa, "and I have never forgotten her distinction nor its usefulness when I hear Indian names lacerated. . . . I think that the influences that surrounded my boyhood gave me a taste for frontier life, and certainly 'Old MacSob,' an American Chippewa, as he called himself, while annually staying with us during payments, gave shape to my determination to visit the upper lake country. . . . The old fellow once taught my father a lesson in hospitality that I have never forgotten. MacSob, who had been fishing through the ice with his little band, and selling his trout to shippers, came down to Detroit on the first boat. On that vessel were some excellent Mackinaw trout packed in ice, a large one of which my father bought and had it baked for dinner on the day of old Mac's arrival. Thinking to please the old Indian, after we had left the table he had Phyllis, a mulatto serving woman that had been in the family for years, place a plate for the old warrior, and invited him to partake of the trout. Old MacSob looked at the fish and then at 'Black Meat,' as he always called Phyllis, and cried out, 'Take him away! too much fish! all winter fish, fish, damn the fish! Black Meat, give me some pork!'" The moral applied by Dr. Bunnell's father was: "Never give a guest what he has been feeding upon at home."

The elder brother Willard Bunnell, who had been on the Lakes as cabin boy, wheelman and pilot, gave up this life on the water after his marriage, and went into the fur trade, locating at Little Bay du Noquet, near the "present site of Escanaba;" he

asked his father to let Lafayette "come up and assist him."

Lafayette Bunnell was seventeen years old but, as he says, he "had been one of the *original drummers and collectors* for the drug house I was with, and for my age was a pretty good student of human nature; so that after some considerable delay my father gave his consent to my going." When he reached the point of meeting, his brother had departed and it was spring before he reached him. Willard was concerned about his health, fearing he would have "the family's hereditary disease, consumption of the lungs," and wished to move to the drier climate of the upper Mississippi. They were undecided as to the exact location for settling; Alexander Grignon, a trader, urged the mouth of the river and "actually pictured to us, in graphic language, the lumber trade that would spring up, and the cities that would arise . . . but we were too obtuse to see things from his point of view." The choice finally lay between Trempealeau and Prairie La Crosse and Bunnell tells of Willard's "picking up a chip and spitting on it, after the fashion of school-boy days, he said: 'Wet or dry—wet up, we go up; wet down, we go down.' It came down wet up, and that being my choice, we started up the river. By just such absurd and unreasonable incidents are our lives sometimes directed."

They reached LaCrosse in June, 1842; passing "Catlin's Rocks" where Bunnell plainly saw the name of the artist, George Catlin (1796-1872), painted in red on the rocks (Catlin had painted Indian portraits in 1835). They moved on to Trempealeau, east of the river, and settled there. Later they settled at Holmes's Landing, where the winter of 1842-1843 was spent. Bunnell's chief comment of this period is that "the comet stayed with us all winter." When the ice left the river they returned to the cabin at Trempealeau, which began to take on a homelike aspect, aided by a fine garden.

Bunnell says that his brother caught the secret of success by "never allowing a weed or blade of grass to grow in his garden."

Bunnell was quick to learn the sign language and had a gift of making friends with the Indians; his Winnebago name was "Woon-gua-shu-shig-gar." He was then a child of the West in her pioneer days, an intrepid, restless, aggressive spirit, with but an ordinary school education, a keen observer with a retentive memory and powers of observation of localities and natural events equal to an Indian. His large experience on the frontier made him a natural leader in coping with the raw energies of nature. In due time he expressed himself in writing freely and well, though with little polish. "Winona," written in his later years, is a storehouse of precious facts relating to early days in the Middle West, especially along the upper Mississippi; here in retrospect we sit by the cradle of a great empire. One of the most interesting episodes is an account of an adventurous trading trip with a companion through Lake Pepin. Before starting, Bunnell had banked wood near LaCrosse, Wisconsin, and sold it. There was a scarcity of pilots and he was offered a position. He says: "I declined the offer, but my taste and passion for beautiful scenery led me to study the river whenever I was travelling upon it." At times he took the pilot's place without compensation, and later he received pay for running steamboat spars to St. Louis or hardwood logs for furniture to other places. Curiously enough, although a good marksman, he was not, like many similarly placed, a good hunter.

In the autumn of 1843 he decided upon a claim at LaCrosse and plowed a furrow with six yoke of cattle around 160 acres, taking in the greater part of the lower section of the present city.

In 1844 he went after some lumber at Beef Slough, and worked the scheme with success; put some money into a lumber

camp on the Chippewa, then started to bring his father and the family to occupy the claim at LaCrosse. His father had consented to migrate, hoping the change would improve the condition of three members of his family (a daughter, son, and grandson) who had consumption. These three died at LaCrosse in the spring of 1845. During the summer of 1845 a messenger came to Bunnell's logging camp, seven or eight miles below the mouth of the Eau Claire River, with news of his mother's death from heart disease. His father had now only a young daughter to live with, and was lonely and discontented, longing for his old home in Detroit and declaring that the younger Bunnell was wasting his life in a wilderness that would not be settled in fifty years. Bunnell says:

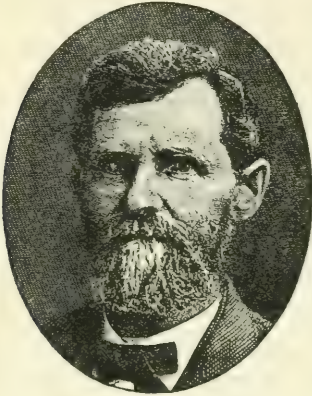
He spoke of the howling, drunken Indians and the not much less brutal white men who made them drunk, and taken as he delivered it, it was a strong plea for my return with him to Detroit. I then had no thought of yielding to his persuasions, but told him of my prospects of realizing a goodly sum from my venture on the Chippewa, and ended by giving him ample funds, which I had saved, to return with my young sister to Detroit, where she had associations that were dear to her, and I went back to my business on the Chippewa, and also to fill a contract I had in St. Louis for spars of large size for the lower river trade.

His father remained in LaCrosse until the next spring, then went to Detroit. Later, while Bunnell was in California, he returned to live in the "howling wilderness," and died of strangulated hernia, at Homer in 1856.

Willard Bunnell and his family crossed the river from Trempealeau and settled at a place first known as Bunnell's Landing which later received its present name of Homer, in honor of the birthplace of Willard Bunnell, Homer, New York. Lafayette Bunnell helped to build the first "permanent house" at Homer, Minnesota,

and after his many adventures returned there and spent his last days in this house erected in 1844.

He served in the Mexican War in 1847, and in 1849 it was inevitable, with his character and training, that he should seek gold in California. His experiences in California form interesting reading in his own words, in his book "Discovery of the Yosemite" (1880). He says in the beginning of his book:



L. H. Bunnell

Autographed portrait of LAFAYETTE HOUGHTON BUNNELL.

During the winter of 1849-50, while ascending the old Bear Valley trail from Ridley's ferry, on the Merced river, my attention was attracted to the stupendous rocky peaks of the Sierra Nevadas. In the distance an immense cliff loomed, apparently to the summit of the mountains. Although familiar with nature in her wildest moods, I looked upon this awe-inspiring column with wonder and admiration. While vainly endeavoring to realize its peculiar prominence and vast proportions, I turned from it with reluctance to resume the search for coveted gold; but the impressions of that scene were indelibly fixed in my memory. Whenever an opportunity afforded, I made inquiries concerning the scenery of that locality. But few of the miners had noticed any of its special peculiarities. On a second visit

to Ridley's, not long after, that towering mountain, which had so profoundly interested me was invisible, an intervening haze obscuring it from view. A year or more passed before the mysteries of this wonderful land were satisfactorily solved.

The events which led to the discovery are as follows: James D. Savage, a trader, had two stores or trading posts, one on little Mariposa Creek, about 20 miles south of the town of Mariposa, the other on Fresno River, where friendly Indians used to congregate. Savage took an Indian chief, José Jerez, to San Francisco to witness the celebration of the admission of California as a state—October 29, 1850. While there the old chief became drunk and quarrelsome and Savage struck him. The Indian upon his return home roused his fellows against Savage and both his stores were attacked. Savage thought that an Indian war was beginning, and commenced to raise a volunteer battalion. He made an appeal for arms to the Governor, John McDougal, when hostilities began. After the "Mariposa Battalion" was formed and assigned to duty by Governor McDougal, there was a "period of preliminaries"; United States Commissioners arrived in camp, about fifteen miles below Mariposa village, and a few Indians came to parley with them; among the visiting Indians were Vow-ches-ter, chief of one of the more peaceful bands, and Russio, a Mission Indian. Vow-ches-ter said the mountain tribes would not make peace. Russio said, "The Indians in the deep rocky valley on the Merced River do not wish for peace, and will not come in to see the chiefs sent by the great father to make treaties. They think the white man cannot find their hiding places and that, therefore, they cannot be driven out." Vow-ches-ter further declared: "In this deep valley spoken of by Russio, one Indian is more than ten white men. The hiding places are many. They will throw rocks down on the white

men, if any should come near them. The other tribes dare not make war upon them, for they are lawless like the grizzlies, and as strong. We are afraid to go to this valley, for there are many witches."

Bunnell after this talk asked Savage, the interpreter, if he had ever visited the "deep valley" mentioned by the Indians. Savage first said that he had, but in a later conversation with Bunnell said that he was mistaken and explained as follows:

Last year while I was located at the mouth of the South Fork of the Merced, I was attacked by the Yosemite, but with the Indian miners I had in my employ, drove them off, and followed some of them up the Merced River into a cañon, which I suppose led to their stronghold, as the Indians then with me said it was not a safe place to go into. From the appearance of this rocky gorge I had no difficulty in believing them. Fearing an ambush, I did not follow them. It was on this account that I changed my position to Mariposa Creek. I would like to get into the den of the thieving murderers. If ever I have a chance I will smoke out the Grizzly Bears (the Yosemite) from their holes, where they are thought to be so secure.

Bunnell says:

The deliberative action on the part of the commissioners, who were very desirous of having the Indians voluntarily come in to make treaties with them, delayed any active cooperation on the part of our battalion until the winter rains had fully set in. Our first extended expedition to the mountains was made during the prevailing storms of the vernal equinox, although detachments had previously made excursions into the country bordering upon the Sierras. This region, like parts of Virginia, proved impassable to a mounted force during the wet season, and our operations were confined to a limited area. It was at last decided that more extended operations were necessary to bring in the mountain tribes.

Bunnell next describes the starting out:

Notwithstanding a storm was gathering, our preparations were cheerfully made, and when

the order to "form into line" was given it was obeyed with alacrity. No "bugle call" announced orders to us; the "details" were made quietly, and we as quietly assembled. Promptly as the word of command "mount was given, every saddle was filled. With "forward march" we naturally filed off into the order of march so readily assumed by mounted frontiersmen while traveling on a trail.

We left our camp as quietly and as orderly as such an undisciplined body could be expected to move, but Major James D. Savage said that we must all learn to be as still as Indians, or we would never find them.

This battalion was a body of hardy, resolute pioneers. Many of them had seen service, and had fought their way against the Indians across the plains; some had served in the war with Mexico and had been under military discipline. . . .

The temperature was mild and agreeable at our camp near the plain, but we began to encounter storms of cold rain as we reached the more elevated localities.

Major Savage being aware that rain on the foothills and plain at that season of the year indicated snow higher up, sent forward scouts to intercept such parties as might attempt to escape, but the storm continued to rage with such violence as to render this order useless, and we found the scouts awaiting us at the foot of a mountain known as the Black Ridge. This ridge is a spur of the Sierra Nevadas. It separates the Mariposa, Chowchilla, Fresno and San Joaquin Rivers on the south from the Merced on the north.

An account is given of the approach to the village of the Yosemite; then Bunnell says:

We suddenly came in full view of the valley in which was the village, or rather the encampments, of the Yosemite. The immensity of rock I had seen in my vision on the Old Bear trail from Ridley's Ferry was here presented to my astonished gaze. The mystery of that scene was here disclosed. My awe was increased by this nearer view. The face of the immense cliff was shadowed by the declining sun; its outlines only had been seen at a distance. This towering mass.

"Fools our fond gaze, and greatest of the great
 Defies at first our Nature's littleness,
 Till, growing with (to) its growth, we thus dilate
 Our spirits to the size of that they contemplate."

That stupendous cliff is now known as "El Capitan" (the Captain) and the plateau from which we had our first view of the valley, as Mount Beatitude.

It has been said that it is not easy to describe in words the precise impressions which great objects make upon us. I cannot describe how completely I realized this truth. None but those who have visited this most wonderful valley can even imagine the feelings with which I looked upon the view that was there presented. The grandeur of the scene was but softened by the haze that hung over the valley—light as gosamer—and by the clouds which partially dimmed the higher cliffs and mountains. This obscurity of vision but increased the awe with which I beheld it, and as I looked, a peculiar exalted sensation seemed to fill my whole being, and I found my eyes in tears with emotion.

During many subsequent visits to this locality, this sensation was never again so fully aroused. It is probable that the shadows fast closing all before me, and the vapory clouds at the head of the valley, leaving the view beyond still undefined, gave a weirdness to the scene, that made it so impressive; and the conviction that it was utterly undescrivable added strength to the emotion. It is not possible for the same intensity of feeling to be aroused more than once by the same object, although I never looked upon these scenes except with wonder and admiration.

Our imagination had been misled by the descriptive misrepresentations of savages, whose prime object was to keep us from their safe retreat, until we had expected to see some terrible abyss. The reality so little resembled the picture of imagination, that my astonishment was the more overpowering.

To obtain a more distinct and *quiet* view, I had left the trail and my horse and wallowed through the snow alone to a projecting granite rock. So interested was I in the scene before me, that I did not observe that my comrades had

all moved on, and that I would soon be left indeed alone. My situation attracted the attention of Major Savage—who was riding in rear of the column—who hailed me from the trail below with "you had better wake up from that dream up there, or you may lose your hair; I have no faith in Ten-ic-ya's statement that there are no Indians about here. We had better be moving; some of the murdering devils may be lurking along this trail to pick off stragglers." I hurriedly joined the major on the descent, and as other views presented themselves, I said with some enthusiasm, "If my hair is now required, I can depart in peace, for I have here seen the power and glory of a Supreme Being; the majesty of His handywork is in that 'Testimony of the Rocks'. That mute appeal—pointing to El Capitan—illustrates it, with more convincing eloquence than can the most powerful arguments of surpliced priests." "Hold up, Doc! you are soaring too high for me; and perhaps for yourself. This is rough riding; we had better mind this devilish trail, or we shall go *soaring* over some of these slippery rocks." We, however, made the descent in safety.

Bunnell says:

My devout astonishment at the supreme grandeur of the scenery by which I was surrounded continued to engross my mind. . . .

After supper, guards stationed, and the camp fires plentifully provided for, we gathered around the burning logs of oak and pine, found near our camp. The hearty supper and cheerful blaze created a general good feeling. Social converse and anecdotes—mingled with jokes—were freely exchanged, as we enjoyed the solace of our pipes and warmed ourselves preparatory to seeking further refreshment in sleep. While thus engaged I retained a full consciousness of our locality; for being in close proximity to the huge cliff that had so attracted my attention, my mind was frequently drawn away from my comrades. After the jollity of the camp had somewhat subsided, the valley became the topic of conversation around our camp fire. None of us at the time surmised the extreme vastness of those cliffs; although dark, we had seen El Capitan looking down upon our camp, while the "Bridal Veil" was being wafted in the breeze. Many of us *felt* the mysterious grandeur

of the scenery, as defined by our limited opportunity to study it. I had—previous to my descent with the major—observed the towering height over us of the old “Rock Chief,” and noticing the length of the steep descent into the valley, had at least some idea of its solemn immensity.

It may appear *sentimental*, but the coarse jokes of the careless, and the indifference of the practical, sensibly jarred my more devout feelings, while this subject was a matter of general conversation; as if a sacred subject had been ruthlessly profaned, or the visible power of Deity disregarded. After relating my observations from the “old Bear Valley Trail,” I suggested that this valley should have an appropriate name by which to designate it, and in a tone of pleasantry said to Tunnehill, who was drying his wet clothing by our fire, “You are the first white man that ever received any form of baptism in this valley (Tunnehill with the mule he was riding had during the trail been immersed, unexpectedly taking a plunge bath in the ice-cold waters of the Merced), and you should be the proper person to give a baptismal name to the valley itself.” He replied, “If whiskey can be provided for such a ceremony, I shall be happy to participate; but if it is to be another cold-water affair, I have no desire to take a hand. I have done enough in that line for tonight.” Timely jokes and ready repartee for a time changed the subject, but in the lull of this exciting pastime, someone remarked, “I like Bunnell’s suggestion of giving this valley a name, and tonight is a good time to do it.” “All right—if you have got one, show your hand,” was the response of another. Different names were proposed but none were satisfactory to a majority of our circle. Some romantic and foreign were offered, but I observed that a very large number were canonical and Scripture names. From this I inferred that I was not the only one in whom religious emotions or thoughts had been aroused by the mysterious power of the surrounding scenery.

As I did not take a fancy to any of the names proposed, I remarked that “an American name would be the most appropriate;” that “I could not see any necessity for going to a foreign country for American scenery—the grandest that had ever yet been looked upon. That it

would be better to give it an Indian name than to import a strange and inexpressive one; that the name of the tribe who had occupied it would be more appropriate than any I had heard suggested.” I then proposed that we give the name of Yo-sem-i-ty, as it was suggestive, euphonious, and certainly *American*; that by so doing, the name of the tribe of Indians which we met leaving their homes in this valley, perhaps never to return, would be perpetuated.” I was here interrupted by Mr. Tunnehill, who impatiently exclaimed: “Devil take the Indians and their names! Why should we honor these vagabond murderers by perpetuating their names?” Another said: “I agree with Tunnehill—the Indians and their names. Mad Anthony’s plan for me! Let’s call this Happy Valley.” In reply I said to the last speaker: “Still, for a young man with such *religious tendencies* they would be good objects on which to develop your Christianity.” Unexpectedly a hearty laugh was raised, which broke up further discussion, and before opportunity was given for any others to object to the name, John O’Neil, a rollicking Texan of Captain Boling’s Company, vociferously announced to the whole camp the subject of our discussion, by saying, “Hear ye! Hear ye! Hear ye! A vote will now be taken to decide what name shall be given to this valley.” The question of giving it the name of Yo-sem-i-ty was then explained and upon a *viva voce* vote being taken, it was almost unanimously adopted. The name that was then and thus adopted by us, while seated around our camp fires, on the first visit of a white man to this remarkable locality, is the name by which it is now known to the world.

Bunnell says: “When we sought our repose it was with feelings of quiet satisfaction that I wrapped myself in my blankets, and soundly slept.”

The signification of the name, “a grizzly bear,” was not at that time generally known to the Battalion, Bunnell says, and the pronunciation was not uniform. Bunnell considered Major Savage the best authority for the correct pronunciation, and he said that Ten-ie-ya (the old chief of the tribe) pronounced it Yo-sem-i-ty although

same other bands pronounced it O-soom-i-ty, and said it signified "a full-grown grizzly bear," and was given to Ten-ie-ya's band because of their "lawless and predatory character."

Lieutenant Moore, of the U. S. A., in his report of an expedition to the valley in 1852, substituted *e* as the terminal letter, in place of *y* in use by us; no doubt thinking the use of *e* more scholarly, or perhaps supposing Yosemite to be of Spanish derivation. This orthography has been adopted, and is in general use, but the proper pronunciation, as a consequence, is not always attainable to the general reader.

Ten-ie-ya repudiated the name for the valley, but proudly acknowledged it as the designation of his band, claiming that when he was a young chief, this name had been selected because they occupied the mountains and valleys which were the favorite resort of the Grizzly Bears, and because his people were expert in killing them. That his tribe had adopted the name because those who had bestowed it were afraid of "the Grizzlies" and feared his band.

"Ah-wah-ne," the Indian name for their valley, was not known to Bunnell until the name "Yosemite" had been generally accepted. In 1855, J. M. Hutchings visited and published an account of the Yosemite, giving the name of Yo-Hamite, but after a long discussion of this point, he wrote, "Had we before known that Doctor Bunnell and his party were the first whites who entered. . . we should long ago have submitted to the name Dr. Bunnell had given it, as the discoverer of the valley."²

Hutchings later says, "For early records of the Valley I am mainly indebted to Dr. L. H. Bunnell, who was not only one of its first visitors and discoverers, but its earliest and principal historian."³ He says

²Hutchings, J. M.: *Scenes of Wonder and Curiosity in California*. New York and San Francisco, 1871.

³Hutchings, J. M.: *In the Heart of the Sierras; the Yosemite Valley, Yosemite Valley and Oakland*, Cal., 1886.

of Bunnell's book that it is "an invaluable and deeply interesting narrative of personal observation and adventure."

Dr. Bunnell wrote on the Yosemite, his statement appearing in Hutchings's *California Magazine*, signed by himself and certified to by two members of the California legislature—James M. Roan and George H. Crenshaw—who were in the expedition. Attention once called to the Yosemite and its discovery, voices for other claimants were heard. The one which seems to be most worthy of consideration was that of Joseph Walker. Mr. Williams says that—"History has done scant justice to Joseph Reddeford Walker. . . . He was the first white visitor to the Yosemite region." The claim has been made that he "discovered and camped in the Yosemite Valley. . . . The evidence available hardly seems to sustain this claim in full. . . . On his gravestone in Alhambra Cemetery, at Martinez, Cal., is the following: 'Camped at Yosemite, November 13, 1833'. . . . We may accept 'Camped at Yosemite,' but are we warranted in assuming that 'at' means 'in'?"⁴ Mr. Williams adds, "Dr. Bunnell's account of it, and of the Indian war of 1851, of which it is a part, is a frontier classic, with Tenaya as its hero."

In 1880 Walker's claim was "set up" in the *San José Pioneer*, and answered by Bunnell in the same paper. Bunnell says, in his book:

I cheerfully concede the fact. . . . that "His were the first white man's eyes that ever looked upon the Yosemite" *above* the valley, and in that sense, he was certainly the original white discoverer. The topography of the country over which the Mono trail ran, and which was followed by Capt. Walker, did not admit of his seeing the valley proper. The depression indicating the valley, and its magnificent surroundings could alone have been discovered, and in Capt. Walker's conversations with me at

⁴Williams, J. H.: *Yosemite and Its High Sierras*. Tacoma and San Francisco, 1914.

various times while encamped between Coulter'sville and the Yosemite, he was manly enough to say so. . . . I told Capt. Walker that Ten-ie-ya had said that, "A small party of white men once crossed the mountains on the north side, but were so guided as not to see the valley proper." With a smile the captain said: "That was my party, but I was not deceived, for the lay of the land showed there was a valley below; but we had become nearly barefooted, our animals poor, and ourselves on the verge of starvation, so we followed down the ridge to Bull Creek, where, killing a deer, we went into camp." . . . I was strongly impressed by the simple and upright character of Captain Walker. . . . All that I have ever claimed for myself is, that I was *one* of the party of white men who first entered the Yosemite Valley as far as known to the Indians.

Bunnell further says that Captain Walker told him that he "once passed quite near the valley on one of his mountain trips; but that his Ute and Mono guides gave such a dismal account of the cañons of both rivers, that he kept his course near to the divide until reaching Bull Creek, when he descended and went into camp, not seeing the valley proper."

Walker's River, Lake, and Pass were named for Joseph Walker. It is to be noticed that Bunnell's name is nowhere attached to any point connected with the Yosemite, and even the government publications I have seen fail to associate his name with the discovery of the Yosemite. On the contrary a statement reads:

The Yosemite was discovered to the world in 1851 by Captain John Boling, while pursuing hostile Indians, with a detachment of mounted volunteers.

The Indians called it the heart of the Sky Mountain, or *Ahwanee*, "the deep grass valley."

⁵ United States Railroad Administration. National Park Series. Yosemite National Park, California.

⁶ General Information Regarding Yosemite National Park, 1910. Washington, 1910, Government Printing Office.

⁷ Matthes, F. L.: Sketch of Yosemite National

Later the name *Yo Semite* was given to the valley, its meaning being "the great grizzly bear," and subsequently, when the National Park was established, this famous name was retained.⁵

Another publication also says: "The Yosemite Valley was discovered in 1851 by Captain John Boling," etc.⁶

Another publication declares that "the valley was discovered in 1851; when a detachment of mounted volunteers, under Capt. John Boling, in an effort to put an end to the depredations of the Indians that infested the region, pursued them to their mountain stronghold. The tales the soldiers brought back of the marvelous scenery of the valley induced J. M. Hutchings, who was then gathering data on California scenery, to organize in 1855 an exploratory expedition to the Yosemite Valley."⁷

Galen Clark, who in 1857 discovered the Mariposa Grove of big trees, makes no mention of Bunnell in his book.⁸ He went to California from New England in 1853, two years after the discovery of the Yosemite. He was made guardian of the Yosemite Valley.

John Muir gives an excellent and brief account of the discovery of the Yosemite, without, however, paying much attention to Dr. Bunnell. He says "After supper, seated around a big fire, the wonderful Valley became the topic of conversation and Dr. Bunnell suggested giving it a name. Many were proposed, but after a vote had been taken the name 'Yosemite,' proposed by Dr. Bunnell, was adopted almost unanimously to perpetuate the name of the tribe who so long had made their home there."⁹ (Muir spells the name "Bunell.")

Bunnell's book on the discovery appeared

Park and Account of the Origin of the Yosemite and Hetch Hetchy Valleys. Department of the Interior, Washington, 1912.

⁸ Clark, Galen.: The Yosemite Valley. Yosemite Valley, Cal., 1911.

⁹ Muir J.: The Yosemite. New York, 1912.

in 1880;¹⁰ in 1890 a discussion in *The Century Magazine*¹¹ brought from Dr. Bunnell a response giving a clear and definite account of the event. An abstract is given here:

I did not fix the day of the month, but remembered that the discovery occurred during a long-continued rain and snow storm at about the time of the vernal equinox. That statement was verified at the time by James M. Roan and George H. Crenshaw, two comrades who, with the writer, were the first white men to enter the valley, and who were then members of the California legislature. . . . Major Savage, our commander, had waited at our camp in the foothills knowing that rain below indicated snow in the mountains, and that by marching in and through the storm we would be most likely to surprise and capture the hostile Indians.

Bunnell tells of the march, then:

Fortunately we had provided barley for our animals, and they did not suffer for lack of forage. After an Indian village was captured, Indian runners were dispatched to bring into headquarters the Indians in hiding; but no response was made by the Yosemiteites. Upon a special envoy being sent Ten-ie-ya, their chief, came alone, and stood in dignified silence before one of the guard until ordered into camp. Ten-ie-ya was immediately recognized and kindly cared for, and after he had been well supplied with food Major Savage informed him of the orders of the Indian Commission under whom we were acting. The old sachem was very suspicious, but finally agreed to conduct an expedition into his beloved valley.

Only a few men were required for this service, though all volunteered, notwithstanding it had been represented that horses might not be able to pass along the rocky trail. Finally a foot race was ordered to determine the fleetness, and consequent fitness, of those most anxious to go; some in their anxiety to win the race ran barefoot in the snow.

¹⁰Bunnell, L. H.: *Discovery of the Yosemite and the Indian War which led to that Event*. Chicago, 1880. 3rd ed., N. Y., 1892. 4th ed., Los Angeles, 1911, G. W. Gerlicher.

¹¹*Century Magazine*, 1890, XI, 705-707.

Here follows an account of the expedition through snow from three to five feet deep, and in some places deeper; and Bunnell goes on with:

The trip was looked upon as likely to be only an exploration of some mysterious cañon. The importance of recording the date of the discovery of the Yosemite did not impress itself upon my mind at the time, for I became completely absorbed in the sublimity of my surroundings. It seemed to me that I had entered God's holiest temple, where were assembled all that was most divine in material creation. For days afterward I could only think of the magnificence, beauty and grace of the waterfalls, and of the mountain scenery; and an almost total lack of appreciation of the event on the part of Major Savage caused me to think him utterly void of sentiment.

Such experiences were not likely to have been soon forgotten, and hence my surprise when I saw in print the statement that the Yosemite Valley was first entered by the Mariposa Battalion on May 5 or 6, 1851, when the rainy season would have been past. This statement is said to have been officially made by our adjutant, and if so, must refer to the date of our second entrance, as our adjutant was not with us on our first entrance or discovery.

Bunnell says that:

Adjutant Lewis was a most genial, kind-hearted gentleman, but I never knew any duties he performed in the field.

As a matter of fact, our Adjutant was not with us when the discovery was made in March, nor were there ever but two companies in the Yosemite at any time, Boling's and part of Dill's. Captain Dill himself was detailed for duty at the Fresno, after the expedition in March, as was also the adjutant. In making out his report, Mr. Lewis must have ignored the first entry of the valley by the few men who discovered it, and made his first entry to appear as the date of the discovery. This may or may not have been done to give importance to the operations of the battalion. I have never seen the report.

I do not wish to call in question the motives of our officers, but our little squad who first

entered the valley should have the credit of the discovery, let it be what it may.

Bunnell goes on to say that he saw El Capitan from Mount Bullion as early as 1840, but nothing could be learned of it. Ten-ie-ya and other Yosemiteis said they were the very first to enter the valley and it could not have been entered without their knowledge. They left after two nights encampment, a slight fall of snow making them fearful of being cut off from supplies.

The Mariposa Battalion was mustered out July 25, 1851. The first attack on Savage had been in May, 1850; hostilities ceased with the capture of Ten-ie-ya and his band in June, 1851. "Lieutenant Treadwell Moore, U.S.A., caught and executed five Yosemiteis in 1852, but no war followed." Bunnell continues:

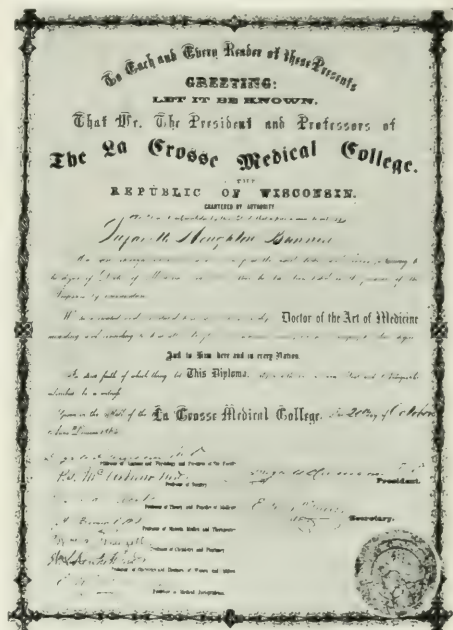
Comrade Starkey of our old Battalion was murdered in 1853. His murderers were pursued by Under-Sheriff James M. Roan, also a comrade, and when overtaken three of them were killed, and the others put to flight. Mr. Moore was compelled to notice the criticisms of the press, and in doing so, in 1854, became the first to draw attention to the scenery. In 1855 Mr. Hutchings first visited it, and since that date has done more to bring the valley into public and appreciative notice than any other man.

After the Mariposa Battalion was mustered out, Bunnell remained in California, trading, mining, and surveying, as late as 1856. He returned to his early home in the Middle West and on April 18, 1861, at LaCrosse, Wisconsin, enlisted in the United States Army. He was appointed hospital steward July 22, 1861, and discharged in May, 1862.

He enlisted in "Company B, Second Wisconsin Cavalry Volunteers in November, 1863, and was discharged March 1, 1865, to accept a commission as assistant-surgeon Thirty-sixth Wisconsin Infantry Volunteers. He became surgeon in July, 1865, and was

mustered out with the regiment the same month and year."¹² His war record included service in the Mexican War, the Indian War of 1851, and the Civil War.

"M.D." appears after his name on the title-page of each of his books, but the fact of his medical education has been most



Diploma of LAFAYETTE HOUGHTON BUNNELL

difficult to establish. The fact that he had a degree, however, has been definitely settled by the discovery of his medical diploma now in the possession of the Minnesota Historical Society; a photographic copy has been furnished me through the courtesy of Mr. Solon J. Buck, superintendent of the Society, who has also given further valuable data concerning Bunnell, prepared by Miss B. L. Heilbron, his assistant.

At the age of sixteen Bunnell was taken into his father's office to study medicine,

¹² Aubrey, J. M.: The Thirty-sixth Wisconsin Infantry (Army of the Potomac).

"much against his will;" and for nearly two years he read, and attended private clinics and demonstrations. After some experiences of frontier life he again turned to medicine, studying with Dr. Scoville at Detroit, but gave up to enter the Mexican War. While his regiment was quartered at Cordova, Mexico, he had charge of the hospital, and was in medical charge of a battalion at the close of the war.

On October 20, 1864, he received M.D., designated "honorary," from LaCrosse Medical College, which was instituted in



SARAH SMITH BUNNELL
(MRS. L. H. BUNNELL)

the autumn of that year. The episode of this college is a brief and almost forgotten chapter of Wisconsin medical history.¹³ Its charter was granted April 18, 1864, to Dugald D. Cameron, P. S. McArthur, J. B. G. Baxter, William L. Kennett, Ewen H. McMillan, William T. Wenzell and Augustus Brummel, as charter members.¹⁴

¹³History of LaCrosse County, Wisconsin, 1881.



Grave of the late DR. BUNNELL in Woodlawn Cemetery, Winona, Minnesota. Marked by the G. A. R. emblem.

As he grew old his chief occupations were reading, writing and gardening. At the age of seventy-three he made the valuable contribution to local history referred to, entitled "Winona."¹⁵

After the Civil War he settled at Homer, Minnesota. He married Sarah Smith, daughter of Joel and Anna Smith, early settlers, and sister of Edward S. Smith, prominent in railroad and other interests. They had no children. Bunnell died at Homer on July 21, 1903, and was buried at Woodlawn Cemetery, at Winona. His grave is

¹⁴Dr. William Snow Miller is in possession of interesting facts relating to this ephemeral institution and will doubtless publish them.

¹⁵Winona and Its Environs on the Mississippi in Ancient and Modern Days. Winona, 1897.

marked solely by the G. A. R. emblem with the small flag. He is buried in the family lot of his brother-in-law, E. S. Smith. The large shaft is the Smith family monument.¹⁶

The credit of the discovery belongs to Bunnell, for after seeing the Yosemite Valley at a distance his interest and poetic imagination were whetted by its seeming grandeur and he kept turning it over in his mind for two years; he alone of the little

¹⁶ Information and photograph through the kindness of Judge H. L. Buck, postmaster, Winona, Minn.

group that entered on a punitive expedition went eager and thrilled with the zest of discovery. He fully appreciated the opportunity, and was filled with a sense of mystery. His companions were impassive and unimpressed, while he was exulting in the glories that unfolded before them; he became its baptismal sponsor and gave the valley its euphonious name and later wrote about it in a never failing spirit of enthusiasm.

For these reasons we claim that Dr. Lafayette Houghton Bunnell was the true discoverer, about March 21, 1851.

A MEMORIAL STONE FOR THE GRAVE OF DR. BUNNELL

As Dr. Kelly states, the grave of Dr. Bunnell remains unmarked save for the G. A. R. emblem.

Dr. Kelly asks that those who feel interested in the plan forward such amounts as they may choose to give for the purpose.

It is to be hoped that such an oppor-

tunity to honor a real medical pioneer will not be neglected by the members of his profession. One dollar will be gladly received as a donation.

Those desiring to contribute should send their contribution to DR. HOWARD A. KELLY, 1406 Eutaw Place, Baltimore, Md.



EDITORIALS

DR. WILLIAM MACMICHAEL

In connection with the great interest which the Balkan States have recently assumed to all the world, the "Journey from Moscow to Constantinople in the years 1817, 1818," by the author of "The Gold-Headed Cane," is well worth reading.

Macmichael was elected a Radcliffe travelling fellow in 1811. As travel in the parts of Europe in which lay the chief medical centres was precluded by reason of the Napoleonic wars, he abandoned the usual routes and instead travelled in Russia, the Balkan states, Greece and Turkey.

Dr. Nias in his most entertaining work "John Radcliffe, a Sketch of His Life with an Account of His Fellows and Foundations," directs attention to the manner in which the Radcliffe fellowships were diverted from their original purpose. In Radcliffe's time the course in medicine at Oxford was, to say the least, somewhat perfunctory and Nias thinks the idea of their founder was to enable the beneficiaries to travel and spend some years in the medical centres in Europe, with the hope that on their return they might remain at Oxford, living on their fellowship, and adding, by the knowledge acquired in their travels, to the lustre of the medical faculty of the University. Unfortunately as Dr. Nias shows, but few of those who won the fellowship settled in Oxford; the vast majority

preferring London as the sphere of their activities. Except for some valuable observations on the subject of contagious diseases and the value of quarantine, which he subsequently published, we doubt if Macmichael added much to his medical knowledge during his peregrinations. The book describing his journey from Moscow to Constantinople contains, however, very piquant and vivid descriptions of the life and customs of the inhabitants of Russia, Wallachia, Moldavia, Bulgaria, and the other principalities through which he passed. Macmichael had been in Moscow shortly after its destruction in 1812, and he expresses his admiration of the zeal and energy which had been manifested in repairing the damage it had sustained. He gives an interesting picture of the contrast between the rich and poor in Russia, and in the light of recent events some of his utterances are prophetic. As he departed from Moscow on December twenty-second, most of the journey was necessarily made in sleighs, and it must have required considerable fortitude on the part of himself and his travelling companion, a Mr. Legh, to undergo the hardships incidental to such a trip in mid-winter. At Kiev and other towns through which they passed Macmichael is struck with the number of Jews and with the terms upon which they lived with their Christian

neighbors. Moldavia and Wallachia were provinces of Turkey at the time when Macmichael travelled through them. He was presented to the Hospodar, or Prince of Moldavia, and also to the Hospodar of Wallachia. After passing across Bulgaria and Serbia he finally reached Constantinople of which he gives an interesting account. From that city Macmichael returned to England but Mr. Legh continued his travels into the Holy Land and they are described in a concluding chapter of the book.

The "Journey" is illustrated by drawings made by Macmichael, which, though somewhat crude from an artist's standpoint, depict vividly the scenes described in the text.

The book, though rare, is not unobtainable and is well worth perusal by those who would compare things as they were with things as they are, our own conclusion being that in the countries described in many respects they have changed but little for the better in the hundred years which have elapsed since Macmichael's journey.

EDITORIAL NOTES

THE SECOND INTERNATIONAL CONGRESS ON THE HISTORY OF MEDICINE will be held July 1 to July 5, 1921, in the Hall of the Faculté de Médecine of Paris. It will comprise three sections, Medicine, Pharmacy, and Veterinary Medicine. The Congress will be presided over by Prof. Jeanselme and Prof. Menetrier. In conjunction with the Congress there will be a loan exhibition of objects of interest in the history of medicine.

A readership in the history of medicine has been recently established in University College, London, which has been filled by the appointment to it of Dr. Charles Singer,

of Oxford. This may be regarded as another indication of the increasing interest in the history of medicine, and the growing importance which is attached to its study. It is fortunate that Dr. Singer can combine the duties of the new position with those of the one he already holds at Oxford.

The Congress of the Italian Society of the History of Medicine will be held in Bologna, in October, 1921. The meeting will be presided over by the president, Prof. D. Majocchi. A special exhibit of objects relating to the history of dermatology will be on view at the Congress.



HISTORICAL NOTES

MACHIAVELLI ON TUBERCULOSIS

The following quotation from Machiavelli¹ indicates that he had a knowledge of the natural history of tuberculosis that is usually considered to be an acquisition of recent times.

Speaking of the attitude of the Romans toward the Macedonians he says:

The Romans on this occasion did what ought to be done by every wise prince, whose duty it is not only to provide a remedy for present evils, but at the same time to anticipate such as are likely to happen; by foreseeing

them at a distance, they are easily remedied; but if we wait till they have surrounded us, the time is past, and the malady is become incurable. It happens then as it does to physicians in the cure of a consumption, *which in the commencement is easy to cure, and difficult to understand; but when it has neither been discovered in due time, nor treated upon a proper principle, it becomes easy to understand, and difficult to cure.* The same thing happens in state affairs, by foreseeing them at a distance, which is only done by men of talents, the evils which might arise from them are soon cured; but when, from want of foresight, they are suffered to increase to such a height that they are perceptible to every one, there is no longer any remedy.

¹ The History of Florence together with the Prince. London, 1898.

SIR HENRY HALFORD'S ACCOUNT OF THE OPENING OF THE TOMB OF CHARLES I

For many years the exact place in which King Charles I was buried after his execution was doubtful, although it had been accurately described by one of the grooms of his bedchamber, Mr. Herbert. King Charles II had endeavored to find his father's body with the view of reinterring it with suitable ceremonies to compensate for the indignities shown on its previous burial. It was known that he had been interred somewhere in St. George's Chapel at Windsor, but during the Cromwellian regime this chapel had undergone so many alterations that those who sought for the tomb were baffled. In 1813, however, in making some alterations under the choir of the chapel an opening was accidentally made through the wall of the vault in which

King Henry VIII's body had been placed, and besides the coffin of King Henry VIII there were found to be two other coffins in the vault, one of Jane Seymour and the other that of Charles I. The Prince Regent in order to clear up any doubt as to the correctness of the latter supposition ordered that the coffin be opened and the body examined. This was done on April 1, 1813, in the presence of the Prince Regent and several other persons.

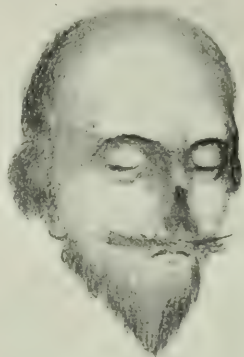
Sir Henry Halford, who was among these, wrote an account of the circumstances and of his examination of the body which is published among his collection of essays and addresses. The event has so much historic interest and the written account of it is so rare, that we here reproduce the

essential portions of it with a drawing made of the king's head as it appeared when exhumed.

On removing the pall, a plain leaden coffin with no appearance of ever having been inclosed in wood, and bearing an inscription "King Charles, 1648," in large, legible characters, on a scroll of lead encircling it, immediately presented itself to the view. A square opening was then made in the upper part of the lid, of such dimensions as to admit a clear insight into its contents. These were, an internal wooden coffin, very much decayed, and the body carefully wrapped up in cere-cloth, into the folds of which a quantity of unctuous or greasy matter mixed with resin, as it seemed, had been melted, so as to exclude, as effectually as possible, the external air. The coffin was completely full; and from the tenacity of the cere-cloth, great difficulty was experienced in detaching it successfully from the parts which it enveloped. Wherever the unctuous matter had insinuated itself, the separation of the cere-cloth was easy; and when it came off, a correct impression of the features to which it had been applied was observed in the unctuous substance. At length, the whole face was disengaged from its covering. The complexion of the skin of it was dark and discoloured. The forehead and temples had lost little or nothing of their muscular substance; the cartilage of the nose was gone; but the left eye, in the first moment of exposure, was open and full, though it vanished almost immediately; and the pointed beard, so characteristic of the period of the reign of King Charles, was perfect. The shape of the face was a long oval; many of the teeth remained; and the left ear, in consequence of the interposition of the unctuous matter between it and the cere-cloth, was found entire.

It was difficult, at this moment, to withhold a declaration, that, notwithstanding its disfigurement, the countenance did bear a strong resemblance to the coins, the busts and especially to the pictures of King Charles I by Vandyke by which it had been made familiar to us. It is true, that the minds of the spectators of this interesting sight were well prepared to receive this impression; but it is also certain that such a facility of belief had been occa-

sioned by the simplicity and truth of Mr. Herbert's narrative, every part of which had been confirmed by the investigation so far as it had advanced, and it will not be denied that the shape of the face, the forehead, an eye, and the beard, are the most important features by which resemblance is determined.



16.3

Drawing made of the head of CHARLES THE FIRST, when exhumed in 1813.

When the head had been entirely disengaged from the attachments which confined it, it was found to be loose, and, without any difficulty was taken up and held to view. It was quite wet, and gave a greenish red tinge to paper and to linen which touched it. The back part of the scalp was entirely perfect, and had a remarkably fresh appearance; the pores of the skin being more distinct, as they usually are when soaked in moisture; and the tendons and ligaments of the neck were of considerable substance and firmness. The hair was thick at the back part of the head, and, in appearance, nearly

black. A portion of it, which has since been cleaned and dried, is of a beautiful dark brown colour. That of the beard was a redder brown. On the back part of the head it was more than an inch in length, and had probably been cut so short for the convenience of the executioner, or perhaps by the piety of friends soon after death, in order to furnish memorials of the unhappy king.

On holding up the head to examine the place of separation from the body, the muscles of the neck had evidently retracted themselves considerably; and the fourth cervical vertebra was found to be cut through its substance transversely, leaving the surfaces of the divided portions perfectly smooth and even, an appearance which could have been produced only by a heavy blow, inflicted with a very sharp instrument, and which furnished the last proof wanting to identify King Charles the First.

After this examination of the head, which served every purpose in view, and without examining the body below the neck, it was immediately restored to its situation, the coffin was soldered up again, and the vault closed.

Sir Henry Halford, the author of the

above record, who was born in 1766 and died in 1844, had the largest and most fashionable practice in the London of his time. He was vulgarly known as "the eel-backed baronet" because of the means he employed to ingratiate himself in royal favor. His real name was Vaughan; he had changed it to Halford in 1809 on receiving a large bequest from a relative who bore the latter surname. In the same year he was made a baronet. He was physician to George III, George IV, and William IV. When George III died, Sir Henry rode posthaste from the royal deathbed to notify his brother of his accession. He was president of the College of Physicians from 1820 until his death. He is said to have retained in his possession the fourth cervical vertebra of Charles I and to have been in the habit of producing it at his dinner table, showing it to his guests as a curiosity. It is curious that apparently no microscopic examination was made to ascertain the character of the supposed bloodstains.

FRANCIS R. PACKARD.



CORRESPONDENCE

PROCEEDINGS OF THE DUTCH SOCIETY FOR THE HISTORY OF MEDICINE, PHYSICS AND MATHEMATICS

We have received from Dr. M. A. van An del of Gorinchem, Netherlands, the accompanying interesting reports of the proceedings of the Dutch Society for the History of Medicine, which we take pleasure in publishing as an indication of the awakening interest in medical history in other countries. The ANNALS is always glad to receive reports or abstracts of the proceedings of societies concerning the history of medicine for publication in its columns.

The Dutch Society for the History of Medicine, Physics and Mathematics (*Vereeniging voor geschiedenis der genees-natuur-en wis kunde*) had a meeting on October 16 and 17, 1920 at Gorinchem (South Holland) under the presidentship of Prof. E. Cohen (Utrecht). The following speeches were delivered:

Dr. van Schevensteen (Antwerp)—The folklore of the pilgrimages in Belgium for the cure of diseases of the eyes—There still exist in Belgium a quantity of places of pilgrimage famous for their holy patron who is able to cure all sorts of diseases. The patrons for the cure of diseases of the eyes are St. Godelive, St. Lucia, St. Leonardus, St. Margarita of Louvais and the Apostle Paul. They are worshipped by prayers and by the giving of *ex voto* offerings representing a pair of eyes made of pasteboard, wood, wax or tin plate. The pilgrims carry little paper vanes bearing an image of the saint and his adventures. St. Lucia, for example, is represented holding a plate with her eyes on it, since her patronage is derived from this phase of her martyrdom. Many medals, images and popular biographies of these saints sold on such occasions, are also of folkloristic interest.

The speaker showed a large collection of these very naive offerings and images reminiscent of the pagan period of religious medicine.

Dr. J. B. F. van Gils (The Hague)—Emblemata of medical interest—Our forefathers of the seventeenth and eighteenth centuries were fond of all sorts of printed emblems explained by a poetical subscription. Famous artists as Holbein, Jan Luyken, Otto Vaenius, Theod. de Bry, Jr. and Arnold Houbraken have contributed to these collections and well-known poets as Coornhert, Roemer Visscher, Hooft and Cats have provided the explanations. Such emblems referring to scenes of the family life of our ancestors are of great historical interest and often contain information referring to the medicine of that time. Dr. von Gils showed about 60 specimens of this kind proving that these booklets and images are neglected by the authors of illustrated books on medical history such as Hollander, Richet and Peters.

Dr. E. D. Baumann (Oude Wetering)—The pathology and therapy of the gout in Greece and Rome—Nearly all classic authors beginning with Hippocrates are acquainted with this disease and its causes. Hereditary disposition, gluttony, debauch and drunkenness coupled with a lazy conduct of life are considered the principal etiologic factors. Galenus ascribes the many cases of gout in his time to the luxury and intemperance of his countrymen. Several classics do not always distinguish clearly between gout and other diseases of the joints; they attribute a great influence to cold and dampness. Aretaïos delivers a masterly description of an acute attack of gout which is still worth reading. The therapy, consisting chiefly of dietetic and hygienic measures, was

in every respect reasonable. Remarkable is the classic treatment by means of an electric thornback, the patient standing with bare feet on this fish until its electrical power was exhausted.

Dr. J. G. de Lint (Gorinchem)—Dutch Leprosy—Since leprosy was very common in the low countries in former centuries, several means for isolating these sufferers were applied to prevent the infection of the healthy population. In the beginning, the lepers were expelled from the community and compelled to live in isolated dwellings without communication with their fellow-citizens. They were, however, allowed to implore their charity, but were required to wear a special dress and to announce their approach by the agitation of a clapper. In later centuries nearly every city erected a leprosy generally outside of the city wall. The inhabitants were at most times allowed to visit the town on fixed days to gather the alms of the charitable. Sometimes they gathered in a solemn procession with drummers, trumpeters, emblems and ensigns, begging in this way the finances for their support. As cases of leprosy became very rare toward the end of the seventeenth century, the greater part of the leproseries were rebuilt or demolished. Fortunately there exist still a sufficient number of pictures, engravings and local maps to inform us of their appearance and arrangement. Dr. de Lint presented a collection of these pictures.

Dr. H. J. Lulofs (Gorinchem)—The "warnings" of Hippocrates—The prescriptions of the father of medicine regarding the conduct of the physician towards his patients and his colleagues are still to us of the greatest interest. Wisdom and dignity are the ornaments of the honest physician and imbue his patients with confidence. The medical art requires charity, application, self-constraint and resignation; eagerness after gain and blustering defile such a noble office and are the attributes of the quack, who robs and maltreats the sufferers. He emphasizes that worthy physicians should respect each other and avoid quarrelling since unworthy behaviour injures not only the physicians but also their art. Several prescriptions regulating the manners, the appearance and the costume of the doctor, which are

estimated to be of real importance, conclude this interesting chapter of medical ethics of more than two thousand years ago.

Dr. M. A. van Andel (Gorinchem)—Poisonous herbs in medicine and magic. The oldest period of medicine is a mixture of knowledge, superstition and religious belief. Especially in therapeutics the remains of that primitive state continued till later times.

The influence of medicinal herbs was attributed to magical powers concealed in them since the real causes of their effect on the body of man were unknown. The narcotic properties of several herbs, causing sleep, insensibility, dreams, hallucinations and madness made a deep impression on the minds of our ancestors and were applied in various ways.

The hallucinations of the witches in the Middle Ages are comparable to those of the medicine men of savagery which were partly provoked by the consumption of vegetable poisons. The unguent of which the witches made use to anoint themselves in preparing for the Sabbath contained several of such herbs as belladonna, henbane, nightshade, thornapple and mandragora. Johannes Wierius relates having witnessed such a proceeding, which was followed by sleep and unconsciousness. After being awakened the witch herself assured those present, that she had experienced the Sabbath.

The superstitious belief of sorcery should be attributed not only to general suggestion but also to the abuse of such poisons which likewise played a part in the frenzies of those who were convinced that they could transform themselves into bugbears. The herbs used for such purposes boasted also of aphrodisiacal powers; the state of exitation following their consumption made them apt to be ingredients of philters. Especially was the mandragora elected for such purposes, the effect, however, being attributed to its supernatural and magical powers. In the greater part of the fantastic descriptions of such herbs one can discover some accurate observation, the exact interpretation of which, however, is impeded by the superstitious beliefs prevailing at that time.

Another meeting of the society was held on December 18 at Amsterdam (University Building) under the presidentship of Prof. E. Cohen.

At this meeting the following papers were read:

A. J. M. Lamers (Hertogenbosch)—*Medical Ex-Libris*—In his introduction the speaker discussed the history of bookplates. In its present form, a loose ticket, pasted on the flyleaf of a book, the bookplate dates from the middle of the fifteenth century and is of German origin. The oldest Dutch specimen appears in 1597. The different periods of art are reflected in the style of old bookplates, the Renaissance, the Caroque, the Rococo, the style of Louis XVI and others can be recognized. In the eighteenth and nineteenth century a period of decline is perceived, which in our day is followed by a revival, in some cases even leading to an excess, as, for example, the use of bookplates exclusively as objects of collection. The bookplate, serving to protect and to adorn the book, has to answer several demands as to originality, individuality and artisticity. The owners of several medical bookplates, of which the speaker showed a large collection, have generally well succeeded in expressing their occupations or their preferences by means of emblems and sentences referring to their speciality, as surgery, obstetrics or psychiatry.

Dr. H. J. Lulofs (Gorinchem)—*The Asiatic and European Race*, according to Hippocrates—Hippocrates was the first author who made an attempt to show the dependency of the general health, temper and character of man upon the geographical situation, the climate, the atmospheric and the hydrological conditions of the place in which he lives. All sorts of diseases are governed by such influences, not the gods, but nature is responsible for the pathologic conditions prevailing in a distinct country. The quality and the composition of the water, together with the way it appears, viz., as rivers, brooks, sources of marshes and the predomi-

nating direction of winds have a special influence on the inhabitants of a country. This theory is illustrated by a detailed comparison between the inhabitants of Asia and Europe. The soft and moderate climate of Asia rears a healthy race of a proportionate stature, but causes also a certain uniformity and prevents the creation of personalities surpassing mediocrity. The climate of Greece, with its different seasons, its soil of varying composition and fertility, gives rise to the great differences between the inhabitants of this country. For the same reason the Greek becomes a personality and distinguishes himself from all other nations. Diseases and complexions also depend upon such external circumstances. The Scythians, inhabiting the great marshy steppes, are forced to a wandering way of living. They chiefly dwell in wagons or ride on horseback. Thus they acquire a uniform type and become weak and enervated. Effeminacy and impotency are the consequences of such a manner of living. The number of children is small, chronic diseases are numerous. It may be ascribed to the imperfect knowledge of his time, that these original thoughts are but imperfectly elaborated and that other influences, dominating the public health, for example, those of race, customs and education are not considered. Yet this curious work fully deserves our attention. Its want of equilibrium is a consequence of the scarcity of the solid foundations on which we are accustomed to building our arguments. Although Hippocrates could not arrive at valid conclusions on this question, yet he succeeded in pointing at the connection between medicine and geography, which has proved to be of such great importance.

M. A. VAN ANDEL.
Secretary.



BOOK REVIEWS

IDLING IN ITALY. *Studies of Literature and of Life.*

By Joseph Collins, New York. Charles Scribner's Sons, 1920. 12 mo., 316 pp. Price, \$3.00.

It is always a pleasure to welcome the excursions of a physician in the field of general literature and it is an interesting subject of inquiry as to why the number has not been larger. The title of this volume raises a question as to its accuracy, for to the majority the study of the material required for the making of this book would represent much hard work. Perhaps the study of Italian literature represents idling to a neurologist—the discussion of which might offer a subject for a symposium in a neurological society.

The author has given us a series of chapters which in the first half of the book deal with Italian literature and writers, with particular reference to poetry and fiction. It is very true that the average American knows little of Italian literature and, as Dr. Collins points out, there is little to guide the inquirer in the way of books about books. One must search out the matter himself and go to the original sources, a proceeding which involves more expenditure of time and energy than many can give. May not the same be said about our knowledge of Italian medicine? How many medical men in this country have even a fragmentary knowledge of the medical work done in Italy in the last twenty-five years? The days are gone when the English speaking world looked upon the teaching of medicine in Italy as the best to be obtained. Visit Padua, for example, and study the number of records of English and Scotch students and one realizes the number who went to

Italy for the hall-mark. It would be an advantage today if more of our young graduates could spend a period of study in Italian medical schools.

There are seven chapters dealing with Italian literature. To many of us the majority of the authors and their works are unknown, yet the sketches and discussions are so given that one reads with interest. There are many illuminating comments and illustrations which owe something to the author's knowledge of psychology, normal and otherwise. The general impression which one gains from Dr. Collins' studies is not a very pleasant one on the whole as to the character of some modern Italian literature but perhaps this might be applied to other nations also. Dr. Collins sums up his estimate of the work of Italian writers of fiction of the past few years by saying that it is "imaginatively sterile and emotionally fecund;" "they are incident-relaters, narrators of personal experiences, observers armed with cameras." His study of D'Annunzio is an illuminating one.

The chapters in the second half of the book deal with a variety of subjects, the majority concerning some phase of the war. It is not easy to review them in any systematic way although there are points about which many readers will disagree with the author, which is not to the book's discredit. There are keen comments which often make the reader pause and reflect, illuminating sentences, which one reads more than once, and striking descriptions which one enjoys. There is a pathetic picture drawn of the condition of the Italian prisoners returned from Austria with tuberculosis.

Perhaps the chapter on "Sentimentality and the Male" is the most philosophical and in it there is much to stimulate thought. There is an interesting chapter on that queer character, Samuel Butler, and much discussion on the place of woman in the life and events of today.

There are some questions which may be asked. What kind of reception did the wedding guests give the ancient mariner? When the author says that "all which we now speak of as democracy flowed from one master mind in Cromwell's little army," the reviewer feels that this is doubtful and that to an individual named John Calvin much of this credit is due. It would be interesting to know the reason for the author's fondness for the use of the word obstacle as a verb. "Nothing obstructed my pleasure as much" is not pleasing English. But these are minor points and we have to thank Dr. Collins for the interesting series of comments and reflections he has given us. It must be a dull mind which is not stimulated by the reading of them. T. M.

AMERICAN MEDICAL BIOGRAPHIES, By Howard A. Kelly, M.D., LL.D., F.A.C.S., Hon. F.R.C.S. (Edin.) and Walter L. Burrage, A.M., M.D. Baltimore. Norman, Remington Company, 1920. 8vo., pp. 1320.

In the preface to this splendid volume Dr. Kelly expresses the hope, which we think is fully justified, that it will become a worthy companion to Garrison's "History of Medicine." It is not often that within ten years after the publication of a large historical work its author has the opportunity or courage not only to revise but to publish as a practically new book a work of the large scope of Dr. Kelly's. He courageously acknowledges the defects which existed in his previous compilation, omitting many biographies which were not worthy of insertion and rewriting many not up to the high standard he set himself. As it now

stands it is as near perfection as such a work can be, certainly perfect in its plan and nearly so in its execution. No doubt there are biographies included which will be deemed by some superfluous, and others omitted which one would expect to find. But in so large a field we think it is well to include even some names which may seem too obscure for the dignity. A careful search fails to reveal any serious omissions.

The individual biographies manifest the careful supervision to which they have evidently been submitted by the editors. The result is a more harmonious whole than was the "Cyclopædia of American Medical Biography." As stated in the preface Drs. Kelly and Burrage have deleted from the Cyclopædia 51 biographies, replaced with new biographies 62 others, and added 815 entirely new ones, making the total here presented to the reader 1948. They make due acknowledgment of previous attempts at the compilation of biographies of American physicians, commencing with Thacher and including those of Williams, Gross, Atkinson, Stone, and Watson, none of which can be justly compared with the present for completeness or accuracy.

It is impossible in noticing a work such as this to go into detail as regards the various biographies. Suffice it to state our perusal has revealed in them a quite remarkable uniformity in scope and execution. A few minor inaccuracies are bound to occur in so large a work. Thus in the article on Joseph Leidy, George Bacon Wood is named as George C. Wood, and in the article on Provost William Pepper he is stated to have been physician to the Pennsylvania Hospital, a position he never held. Elisha Kent Kane is stated to have been a resident physician "in the Pennsylvania Hospital, Blockley," whereas Blockley, in which he was a resident physician, is the Philadelphia Hospital, and Kane was never connected with the Pennsylvania Hospital in any capacity. It would be not only invidious

to search for but impossible not to find a few such slips in such a *magnus opus*. The work is unusually free from them.

The omission of illustrations from the book is commendable. These add greatly to the expense without increasing the value. In the separate biographies information is given as to where portraits can be seen and this information is sufficient to supply the wants of any who desire to see or use them. Every writer on American medical history will find it absolutely essential in his labors.

FRANCIS R. PACKARD.

THE SCHOOL OF SALERNUM (REGIMEN SANITATIS SALERNITANUM). The English Version, by Sir John Harington; History of the School of Salernum by Francis R. Packard, M.D. and a Note on the Prehistory of the Regimen Sanitatis by Fielding H. Garrison, M.D. New York. Paul B. Hoeber, 1920. 12 mo., pp. 216.

This is a delightful book, for which the medical profession owes a debt of gratitude to the editor and the publisher. The Regimen Sanitatis is one of the few survivals of the great Salernitan School, which rivaled Paris and Montpellier in the Middle Ages, and which, like the University of Wittenberg, where Hamlet and Horatio studied, is no more. The original is in the Latin rhyme so popular in medieval times, though not in the short, stirring couplets of Celano's "Dies iræ." It deals in minute detail with the habits of daily life, with the best

methods of promoting the normal action of the bodily organs; with the diet in health and in disease—what to eat in the heat of summer and the cold of winter; how much to sleep and when to bathe, and upon all these methods the Regimen's advice is for the most part sane and sound, far sounder, indeed, than that of the medical books of two or three centuries later. No wonder it passed through a vast number of editions during the Middle Ages and the Renaissance period. Much space is devoted to the subject of bleeding, the unknown writer expressing the naïve views current in his time. The English translation is by John Harington, a contemporary of Shakespeare and a tutor of Prince Henry, for whose benefit the translation was probably made. Harington's translation is free from pedantry and though adhering closely to the spirit of the Latin, renders the text in quaint rhyming couplets full of charm and vigor. Delightful woodcuts appearing in some of the earlier editions have been wisely reproduced. In addition, the editor, Dr. Francis R. Packard, who has done so much to stimulate an interest in medical history in this country, has written, as a preface, a short history of the University of Salerno, while Dr. Fielding H. Garrison contributes an erudite chapter on the prehistory of the Regimen sanitatis. No physician who is interested in the history of his calling will feel that his library is complete without this book.

DAVID RIESMAN.

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GIDEON HARVEY

SIDELIGHTS ON MEDICAL LIFE FROM THE RESTORATION TO THE END OF THE XVII CENTURY

By H. A. COLWELL, M.B., M.R.C.S., D.P.H.

LONDON, ENGLAND



THIS is not my intention in this paper to attempt anything like a life of Gideon Harvey. The late Dr. Payne collected all that is probably worth knowing about the life of the gentleman in question. He is interesting merely from his books. In them he discusses, usually adversely, much better men than himself, and gives vivid and sometimes humorous descriptions of the medical life of his time which extended from before the Restoration to the end of the seventeenth century. In reading Gideon Harvey's books we are introduced into the consulting room, the apothecary's shop, the herb market, and the sick room itself. In dealing with persons who were living at the time he wrote, he nearly always distinguished them by some (usually uncomplimentary) nickname. Those

who were dead either had their full names given, or the disguises are so transparent that identification is easy.

There are numerous autobiographical references scattered throughout his writings, and, needless to say, these are not conspicuous for any self-depreciation on the part of the writer. Generally speaking his diatribes do not seem to have called forth any replies, presumably because he was not considered worth powder and shot. There is, however, one little book entitled "A Dialogue between Philater and Momus" in which he comes in for a well-deserved castigation. It bears as a motto on the title page, "A Whip for the Ass, and a Rod for the Fool's Back." To this little work, which contains a kind of epitome of his writings, we shall occasionally make reference.

Gideon Harvey, the son of John and Elizabeth Harvey, was born in Holland. His mother may have been either a foreigner, or of foreign extraction, since the

"Dialogue" twits him with having obtained a distinction of which he was inordinately vain—the fellowship of the College of Physicians at the Hague—through his mother's "Bohemian" interest. The word Bohemian, then as now, may have other significations than mere nationality, so perhaps the allusion is not of very much value, except that the writer of the "Dialogue" obviously regarded it as very uncomplimentary. According to Harvey himself, he took his medical degree at the mature age of seventeen, and after studying at various places on the Continent returned to England to practice his profession. It is a noteworthy fact, that though he is discursive enough upon his great medical experience and the eminent professors under whom he studied, he maintains a discreet silence as to the university where his degree was obtained.

In the "Calendar of State Papers"¹ there are the following entries:

July 6, 1659. On motion of Desborow, Dr. Gideon Harvey to go as Physician to Dunkirk.

January 14, 1659⁶⁰ Dr. Harvey to be Physician for Dunkirk. £7200 to be sent to Dunkirk. £200 for medicaments required.

He applied for, and was granted, "Letters of Denization" in England in December, 1661, and in 1663 his first published work appeared—a stout quarto entitled "Archologia Philosophica Nova," or Dr. Harvey's "New Philosophy." It is adorned with the author's portrait, which has to be folded since it is too large for the book. This portrait was the subject of very personal remarks in the "Dialogue," which comments thus:

'Tother day in rummaging a booksellers' shop to see what rarity I could find, I chanced to meet with a thick *Quarto* of yours, that I never heard of before, called *Archeologia Philosophica Nova*, or *New Principles of Philosophy*. You had a good opinion of it no doubt, for you had your *Phis-nomy* before it, with your hair combed,

large Band and Band-strings, with your outlandish Whiskers turned up a *l'Hispaniole*, and a Death's head in your left hand.

Of the contents of this magnum opus but little need be said. It is in no sense a medical work and consists of five sections, one of which is entitled "Religio Philosophi," a title which the "Dialogue" suggests may not be altogether without its inspiration from the "Religio Medici." It is an extraordinary discursive jumble, and though I have made two or three attempts to sit down to it I have always been unsuccessful in unravelling its tangled skein. The author of the "Dialogue" was, however, more persevering; he not only dived into the philosophical mine but emerged with a pageful of gems which he displays for his readers' edification.

Gideon Harvey had suggested that it might be necessary to peruse his volume twice in order to appreciate its true value; the "Dialogue" considered that once was amply sufficient, and then recommends the following extracts wherein the reader may learn—

That the Chaos had a form (p. 11).

The different effects of the severe knocks of the Chaos.

What the Catochization of a Flame is (p. 145).

Why a potch'd Egg doth commonly set itself in the middle of the water in a Skillet (p. 66).

Why a Kiss seems pleasing to the Lips, and why the same delightful feeling happens also to a dog applying his Chops to a Bitch's tail (p. 201).

Whence it is that a man may carry a greater weight upon a wheel-barrow than upon his Back (p. 427).

How Virginals and Organs are made to play by themselves (p. 154).

Why a Squib turns with so many whirles in the Air (p. 38).

Why Feathers, Cobwebs and other light bodies do expand themselves when thrown into the Air (p. 40).

Why a man when he is alive, sinks down into

¹ Domestic Series, 1659-1660.



DR. GIDEON HARVEY.
(Frontispiece to his *Archologia*)

the water and is drowned, and afterward is cast up again (p. 105).

The trying of Witches by swimming in the Water.

That Water is not naturally moist, neither doth it moisten (p. 36).

That the scent of Excrements smells sweet to a Dog. And that a Dog scents a Bitch a great way off, although lock'd up, without seeing of her, and apprehends the scent under the tail to be no ill scent (p. 197).

In his earlier days there was nothing Gideon Harvey loved better than to dedicate his books to some great man. This work was no exception, but I cannot think the selection was lucky. He dedicated it to the Earl of Ossory, a distinguished soldier and a learned gentleman. Ossory had been the intimate friend of John Evelyn since the Earl was sixteen, and Evelyn was twenty years of age, the friendship lasting until Ossory's death in 1680. Not improbably the Earl was as perplexed with this incomprehensible medley as others have been, and it is not inconceivable that he should have discussed it with his friend. What that friend's opinion would have been there can be very little doubt. Gideon Harvey was inordinately fond of distinctions (until the rascal saw the game was hopeless and gave it up) and he may have been conceited and impudent enough to think his philosophical effort would gain him admission into the recently founded Royal Society.

It is the preface to this book which contains the statement that Harvey received his medical degree at seventeen, and the stupid boast that "it was never my fortune to read two sheets of any English Book in my life, or ever to have had the view of so much as a Title-leaf of an English Grammar."

If that was the case why should he trouble himself to write in English? It was not the usual means of communicating professional information at the time, yet only one of his books seems to have been originally

published in Latin. (It is well known that very probably Sydenham wrote his works in English and that they were translated into Latin for publication.) These and similar statements in the preface, the large portrait prefixed to his first work and the general scope and contents of the book, sufficiently bespeak the man.

It was Thackeray who in his charming papers on the English humorists apologized for calling Congreve the greatest literary "swell" of his time. I fear that in the case of Gideon Harvey, a similar apology is needed for the use of an unclassical expression, since it is only possible to refer to him as the greatest medical "bounder" of his time.

Besides the publication of Gideon Harvey's first book, other events were happening in the medical world in 1663 which were destined to have a very definite influence upon his career and his writings.

The Royal College of Physicians had the power of licensing all who wished to practice as physicians in London. In the troubled times of the Great Rebellion, and afterwards, however, the enforcement of this right fell into abeyance, or at least into neglect. About 1663 the president of the college determined that such a state of things should no longer continue, and among those who were duly admitted as licentiates after passing the necessary examinations was Sydenham.² Among those who did *not* present themselves for examination and admission to the licentiateship was Dr. Gideon Harvey.

At a later period, and while he was still writing pages of fulsome adulation of the college, he explained that when he commenced to practice in England he was too old to submit himself to examination, and moreover that had he done so, he would have been junior in rank to many who were younger in years than himself. But this was not all; in 1664 some seventy eminent physicians who possessed the necessary

² On June 26, 1663.

medical degrees were admitted to the full privileges of the fellowship upon payment of the statutory fees, without any examination at all. I think there is very little doubt that our friend fully expected to be one of the elect. The college decreed otherwise, and as Harvey refused to present himself for an examination, and the college did not make him a fellow, it is clear that he was practicing in London without any legal status. Whether it was want of knowledge or mere obstinate conceit that prevented him from taking the necessary examinations is not now of very much interest. One thing is plain, namely, that Sydenham, though a considerably older man than Gideon Harvey,³ took the examination and was admitted a licentiate in the usual manner. Probably it is to Sydenham, to whom he bore an inveterate malice, that he refers when speaking of one who had a forged diploma from Oxford.⁴ His violence against Sydenham is not easy to account for, since, great though he was, Sydenham had an unreasonable prejudice against the minute study of anatomy, physiology and microscopy. Research on these subjects caused Harvey to pour forth his wrath at a later date upon Lower, Willis, and other eminent investigators, though, of course, without harming any one but himself.

³Sydenham was born in 1624; Gideon Harvey, about 1640?

⁴Owing to some irregularities in the records, there was some difficulty about establishing Sydenham's degrees. Payne: "Life of Sydenham," 98 (footnote).

I do not think we shall be wrong in assuming that he lived on for some years in the hope of getting the fellowship of the college bestowed upon him *bonoris causa*, until finally the disappointment culminated in such a series of affronts to common decency and professional etiquette; that the breach was irreparable.

In 1665 appeared Harvey's "Discourse of the Plague," a thin quarto consisting of only twenty-nine pages. The style is generally fair and not disfigured by vulgarity, while the subject matter is much the same as in other contemporary works upon the same subject. The title page bears the arms of the City of London and the inscription, "Published for the benefit of the Great City of London, and Suburbs." The use of the city's arms was almost undoubtedly unauthorized. Mr. Kettle, the Guildhall librarian,



THE EARL OF OSSORY.

and Mr. Thomas, the Records Clerk of the City of London, have most kindly investigated the matter for me, and there is no mention in the City archives of Harvey being authorized by the City authorities to publish any such book under their sanction. He is not mentioned as one of those who stayed in London and tended the sick at the time of the Great Plague, and his use of the city arms is most likely merely one of those pieces of self-advertisement of which he was so fond. That this was the case is borne out by the fact that Dr. Nathaniel Hodges, who worked in London throughout the epidemic, received £10 from the corporation for his book,

"Loimologia" which, however, has no such addition to its title page.

The introductory paragraph of Harvey's discourse deals with the causes of the plague.

Plagues do ordinarily survene upon Inundations, Stinks of rivers, unburied carcasses, Mortality of Cattel, Withering of Trees, Extinction of Plants, an extraordinary multiplication of Frogs, Toads, Mice, Flies, or other Insects and Reptiles, a moist and moderate winter, a warm and moist Spring and Summer, fiery meteors, as falling Stars, Comets, fiery Pillars, Lightnings, &c. A ready putrifaction of meats, speedy Moulding of bread, briefness of the smallpox and Measles, &c.

This passage not only testifies eloquently to the sanitary conditions of the time, but gives a wide scope to imagination as regards portents both celestial and terrestrial. The actual cause of the disease he considers to be arsenical fumes exhaled from the earth, as a result of the filth which had percolated into its substance from the surface. The treatment of the disease and the several prophylactic measures enjoined do not call for notice; one set of measures is, however, designed for the rich and another for the poor. The former are recommended, among other things, to have a fire in their bed-rooms, to air their clothes and to change them frequently, the nose and lips are to be anointed with aromatics, and a little cap stuffed with spices is to be worn in order to protect the brain. The living rooms are to be purified by "flashing" gunpowder in them two or three times a day, and by the frequent burning of pitch and brimstone. Cats and dogs are to be banished not only as carriers of contagion but as the exhalers of stinking fumes which may become malignant.

The poor are recommended a variety of aromatics, pills and potions, and are exhorted to cleanliness and to free indulgence in tobacco smoke.

For the out of doors he recommends:

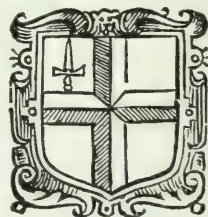
The air may be purified by burning great fires of pitch barrels, especially in close places; by discharging of great guns into infectious streets, by burning of *Stinck pots* or *Stinckers* as they call them; besides many other ways which at present time and paper denies us a recital of; Otherwise I would have inserted many other

A DISCOURSE OF THE Plague.

Containing
The Nature, Causes, Signs, and Pre-
sages of the Pestilence in general.

Together with the state of the present Contagion.
Also most rational Preservatives for Families, and
choice Curative Medicines both for Rich and Poor.
With several waies for purifying the air in houses, streets, &c.

Published for the benefit of this Great City of
London, and Suburbs,
By *Gideon Harvey* M. D.



London, Printed for *Nath. Brooke*, at the *Angel in Cornhill*,
near the Royal Exchange. 1665.

Title page of Gideon Harvey's Discourse of the Plague.

and very considerable Secrets for Preservation and Cure, but I content myself to have served the Public, by divulging the most apposite methods, and choicest medicines that can be composed or thought upon.

This is the last paragraph in the book, and is about as audacious a piece of advertisement as one is likely to see, especially the hint about the secrets which might be revealed if it were not from lack of time and paper. The same lack of time, as we shall

see, also prevented him from giving the details of a certain secret cure for another malady. Doubtless both sets of secrets might be had from the doctor upon payment of a suitable honorarium.

A second edition appeared in 1673. From a quarto it had shrunk to an octavo, and the title page is devoid of the City's arms and of the inscription.

We now come to the book which was probably the beginning of the open war with the college, "Great Venus Unmask'd," which appeared before the publication of the Plague book, since reference is there made to it, while a second edition came out in 1672. It can only be described as a dirty little book on a dirty subject, and the author seems to be thoroughly in his element and revels in illustrative anecdote and detail. Of the fact that it was intended for non-professional readers there can be no manner of doubt, since technical terms are explained in marginal notes. In order to give that appearance of deep erudition which its author was so fond of assuming, the book is full of allusions to old medical writers, and some of them, certainly, are amusing to the professional reader of today.

We have a full account of all the theories which had been advanced to account for the first origin of venereal disease, and the attempts of different nations to shift the responsibility for its introduction from one to the other. Gideon Harvey holds the view that it is a hybrid of scurvy and "manginess," and while denying its origin to the time of the celebrated and much blamed siege of Naples in 1495, he dates the introduction of the scurvy to that event, a procedure which is a little reminiscent of the undergraduate who said that "Homer's works were not written by Homer, but by somebody else of the same name." He mentions the term syphilis, as a nickname given to the pox by Frascatorius, but naturally he does not differentiate between the essential varieties of venereal infection.

Popular names for venereal disease in the last quarter of the seventeenth century were, "clapp, the Krinckams, the Had'em, Disease a la mode, the Pretty disease, the Noble disease, the Gentle disease, and the Common disease," while according to the political views and nationality of the speaker it was referred to as the French Pox or the Spanish Pox. A little further on he mentions that he has a practically infallible secret cure for venereal disease which will adjust matters to the mutual satisfaction of doctor and patient in four days. As we shall see this secret remedy crops up in a prominent place a little later on.

The second part of "Great Venus" contains the details of treatment both by diet and drugs. The dietetic measures do not call for any special mention, except that when dealing with beverages he mentions the "new Idol, Coffee" and throws some light on the early methods of preparing chocolate.

Chocolate is a thick juice pressed out of certain *American* fruits (called cacaonuts) or kernels, inclosed within hard husk or cods, in colour much resembling Almonds. This juice being incorporated with several spices, and sometimes with rich perfumes, as musk or Amber-grise (which do much alter the price) is exposed to concretion; which dissolved in some warm milk, beer or wine (but Claret or Sack Posset seems best) is found to be a great comforter.

A good choice of cures for venereal disease is given; these go by the names of "the Primitive, the Grand Hermaphroditick, the Herculean, the Gigantean, the Vuleanous and the Cure *a Posta*; the Grand Diet, the Indian, negligent, pety (sic) and symptom-atick cures." At the end of the book is a little paragraph worded as follows:

ARTICLE XX

OUR SECRET CURE

88. I have now imparted to you the surest and most select methods of curing the Pox;

but finding some either too tardy, others palliative, incommodious, or too churlish, it hath occasioned us to apostate into this secret and admirable way of profligating that Evil, *certo, tuto, cito* and *jucunde*. And were it not that time, and some urgent affairs had countermanded my intentions, I should have carefully disclosed it to you, together with several observations and remarkable cures performed by it, likewise a most ready and certain method of curing a Gonorrhoe.

Liars proverbially need to have good memories. When this secret cure was first mentioned the author explained as his motive for secrecy that he was afraid its publication might act as an incentive to vice. Here we learn that want of time explains his reticence, and thence draw our own conclusion that the book is an advertisement and that the cause of secrecy is not morality but money.

Very much on the same lines, but smaller is his "Little Venus Unmask'd," the first edition of which appeared in 1671. This work is a kind of abstract of the larger one, and according to an advertisement in another of Gideon Harvey's books,⁵ was sold for one shilling. In the same advertisement appears the "Accomplish't Physician,"⁶ also price one shilling, and the information that both works are the productions of Dr. Gideon Harvey.

By 1685 "Little Venus" had reached the fifth edition. To make matters worse, not content with writing and publishing this book at the price of a shilling, the author prefixed his portrait of which we subjoin a copy. After behaviour of this kind it is no wonder that the college refused to have anything to do with him.

There is an episode in the life of the Earl of Rochester which seems interesting in this connection. As is well known, Rochester during one of his enforced absences from court masqueraded in town as a quack

doctor, and frightened the lives out of the maids of honour and their waiting women by his predictions. The pox, of course, played a prominent part in his harangues, and after a perusal of Gideon Harvey's small monographs it struck me that they contained exactly the kind of information which would be useful to anybody masquerading as Rochester was. Vivid descriptions,



DR. GIDEON HARVEY.
(Frontispiece to *Little Venus*.)

anecdotes, and above all numerous references to learned writers, with marginal notes giving the names and the titles of their works, seem to supply an ideal ready made stock-in-trade for a quack doctor. It is not surprising that books on venereal disease should have been popular at this time; it formed quite a feature in the drama—as witness some of Wycherley's plays—and its signs and symptoms were doubtless of more than theoretical interest to many whose names are recorded in the Grammont memoirs and other writings of the time. In publishing two popular little books on the subject, we have no doubt that

⁵ *Morbus Anglicus*. Undated.

⁶ See p. 213.

Harvey was feathering his nest financially, however much he may have been damning himself professionally.

The two books entitled "*Morbus Anglicus*" do not present any specially interesting features. It may, however, be mentioned that they are two distinct books with the same title.

The "*Accomplish't Physician*" appeared in 1670, and, although ascribed to Christopher Merritt, is proved to be Gideon Harvey's not only from its style and matter, but from the advertisement in the "*Morbus Anglicus*," and from the fact that he expressly claims it as his own handiwork in his "*Art of Curing Diseases by Expectation*."

This book is ostensibly directed against all sorts and conditions of quacks, including practicing apothecaries and prescribing surgeons. Gideon Harvey is always severe on quacks of all kinds and has quite exalted ideas of the relative importance of physicians and surgeons. Surgeons are frequently mentioned by him in company with empirics, barbers, midwives and old women, though when he came to treat Lord Mohun, as related in his "*Casus Medico-chirurgicus*," an English surgeon was the only other practitioner in attendance upon the patient with whom he did not disagree or quarrel.

In addition to putting the apothecaries and surgeons in their proper place, he gives an outline description of what he considers a suitable education for a physician, and it need hardly be said that the course recommended is very much the same as he claimed to have pursued himself. He even goes so far as to suggest an itinerary for the would-be student. There are a few amusing passages in the book, and he already seems to have had his eye upon those who made use of religion as an advertisement for seeming professional advancement in an unprofessional manner. We have the tale of a quack English doctor at Leyden, who went about accompanied by a tavern-haunting confederate whose duty it

was to secure the patients. This confederate on putting up at an inn, began to sing the praises of his master who claimed a particular skill in making a prognosis from examination of the urine. Three students (two of whom were "Hectics" and the third dropsical) resolved to mix their urines and to submit them to the quack, as they hoped to his discomfiture. The latter, having been warned by his confederate, made an accurate diagnosis of the mixture and of the patients' several conditions, much of course to his own glory and advantage.

In another place Harvey recalls the fable of the Ibis administering a clyster to itself, but with the small inaccuracy that he writes "Isis" for "Ibis."

In 1672 for some reason or other our author saw fit to conform to the usual practice of his time and published a work on fevers—"De Febribus Tractatus Theoreticus et Practicus." This appeared in an English translation in 1674, with the title "*A Theoretical and Chiefly Practical Treatise of Fevers wherein it is made Evident that the Modern Practice of curing continual Fevers is dangerous and very unsuccessful*." Certainly the English title does not seem to convey the author's meaning very clearly, and the translator (one J.T.) would have done better to write "treating" instead of "curing." Of course it contains nothing of scientific value, but a good deal of its author's own private, particular speculations set forth with as much pedantry and dogmatism as was usual with him.

A brief analysis of the first chapter may serve to indicate its style and matter. The subject is—"The Nature of Innate Heat," the beginning of the chapter being devoted to etymological details. Fever is defined as:

A fire kindled out of the Innate heat of the body, chiefly of the heart. By putting the hand into the ventricles of decapitated malefactors it may be demonstrated that the "*calidum*" or heat of the heart is really a substance burning about its chambers. This fire does not con-

sume or destroy the body since it is not material like the flames of burning brimstone or spirit of wine, and its purity of flame will not burn those bodies it touches.

If this lucid explanation does not satisfy the inquiring mind he proceeds:

Furthermore, I state the *Calidum Cordis*, or heat of the heart, to be a *Bitumen* really ethereal and vital, most exactly desicated or refined dispersing everywhere its most subtle and pure flames and feeding on the most pure and flowering parts of the Blood.

A further elucidation of the nature of body-heat follows:

As waters of hot mineral springs (Aix or Bath) since they come out of the deepest and most remote bosoms of the earth, just in the same manner doth the indefatigable soring of vegetative, or living blood leap very hot out of the bosom of the heart into the arteries, like rivulets; and certainly, that which by natural Philosophers is asserted to be the cause of heat in those waters may easily be imposed upon me, to believe the same to be the cause of heat in the blood, namely a *Bitumen*, but not *Sulphur*.⁷

It will be observed from these extracts that our author has not become less fond of dogmatizing since the publication of "Archelogia."

The following chapters treat of pulses, urines, and the true and spurious essence of a fever. In Chapter V "Concerning the Fopperies of Fermentation" he begins to get decidedly, though anonymously, abusive. In France, we learn, it was customary

⁷In the absence of clear ideas upon combustion and oxidation notions regarding the source of the body heat were necessarily indefinite. The following passages from Pepys and Evelyn are of interest in this connection.

PEPYS. *January 22, 1665*. . . . But what, among other fine discourse pleased me most, was Sir G. Ent about Respiration: that it is not to this day known or concluded on among physicians, nor to be done either, how the action is managed by nature, or for what use it is.

EVELYN. *December 13, 1685*. . . . Dining at Mr. Pepys's, Dr. Slayer shewed us an experiment of a wonderful nature, pouring first a very cold liquor

to bleed patients as many as forty times for fevers, while young physicians in this country, having newly arrived from the university, "diligently repair to the apothecaries' shops, for to inform themselves with the forms and receipts of the Elder Physicians." A later reference to "one who was formerly



THOMAS SYDENHAM, M. D.

into a glass, and super-fusing on it another, to appearance cold and clear liquor also; it first produced a white cloud then boiling, divers coruscations and actual flames of fire mingled with the liquor, which being a little shaken together, fixed divers suns and stars of real fire, perfectly globular, on the sides of the glasse, and which there stuck like so many constellations, burning most vehemently, and resembling stars and heavenly bodies, and that for a long space. It seemed to exhibite a theory of the eduction of light out of the chaos, and the fixing or gathering of the universal light into luminous bodys. This matter, or phosphorus, was made out of human blood and urine, elucidating the vital flame or heat, in animal bodies. A very noble experiment!

Captain of a Troop of horse, but of late years hath practised as a Doctor of Physick" is one of his numerous digs at Sydenham and his work on fevers.

The final twenty-five pages or so are devoted to the recitation of a series of cures by Dr. Gideon Harvey, wherein the reader may find not only the disease and its treatment, but the name, address, and social position of each of the patients.

In his work on the scurvy, published in 1675, there is a fulsome dedication to Charles II wherein that monarch is complimented on the re-establishment of the Royal College of Physicians.

Moreover that their . . . Lives might be Preserved from the pernicious attempts of Empirics, You have Re-established a College of Experienced Physicians and to these your Royal Laboratory sheweth out of what Materials, and in what Manner the best Remedies are to be Prepared; so as You are the Greatest King, You are the greatest Physician, whence I have presumed to lay this Treatise at the Feet of Your most Gracious Majesty, humbly craving Your Protection against the Scurvey of this Age, and imploring Your Royal Clemency for a Pardon for this Address, am in all Duty bound to Acknowledge myself

*The most Humble
most Obedient, and
Meanest of Your Ma-
jesties Subjects*
HARVEY

That little reference to "the Scurvey of this Age" seems to shew that Harvey's professional relations were not as entirely cordial as might be desired. Nevertheless, the preface is full of adulatory remarks concerning the College:

It is Observable that the First Solid Foundation of Physick was laid by the Great Architect Hippocrates, in an Isle called COOS, and it is no less Remarkable that the truest Superstructure was made on it in this Island, by the Famed College of Physicians of London. It was a member of that Society, Doctor William Harvey, of Immortal Memory that laid another Basis, by

Detecting the Circulation of the Blood, for which this Britain may as justly Merit the Title of Divine, as the other Couts.

A little further on the president of the College, Sir George Ent, is referred to as an "Incomparable Physician," while the scientific researches of Wharton and Glisson acquired additional lustre from the fact that they were fellow and vice-president of the College, respectively. Of Dr. Bates (the co-author with Glisson and Regemorter of "De Rachitide") he writes:

In all my travels I had never the good fortune to be particularly acquainted with a person equal in Literature, Experience, and Observation with Dr. Bates, and I must confess I ever went from him more knowing than I was before.

The excellency and careful complication of the pharmacopœia of the College—"that Apollinean Society"—receives its meed of praise, and London theriaca is declared equal to the Venice product, as doubtless it was. Subsequently Harvey rated both articles at their true value, but whether this was a genuine conviction or merely an attack on the College which retained theriaca in its pharmacopœia it is impossible to decide. At any rate the later pronouncement is about the only statement of scientific value in Harvey's writings. In the same preface the English surgeons are favourably contrasted with those of France, and at the end of this same document is the following little autobiographical note: "But possibly it may appear strange, that of a Society whose fame is spread as far as the Art of Physick itself, I should not endeavour to be a member." This is followed by the statement that on his arrival in London to commence the practice of medicine, when he ought to have joined the College, he found nothing but fanaticism, praying and preaching going on, and so did not join. At the Restoration, however, "*finding the College Re-established and Revested with their Ancient Lustre, and many to have got in, who when I*

began to practice, were not come from the Grammar School, if I should come in I must give Precedency to those Youngsters, which I imagine I shall never do."

Here again the last phrase rather suggests a rift in the lute. I think it is reasonably certain that he modestly expected to be made a fellow of the College on account of his merits. The "Dialogue" makes Momus (i.e., Harvey) say:

Know then that when I came to this town to practice, I neglected the entring myself into the College as you call it. I expected at first to be courted and sought to by them as knowing my own worth, and the *Excellency of my Education* above any of the best of the Members of the same College; and therefore it would have been an honour to them and a grand condescension in me to have been admitted into the best capacity among them. By degrees as I grew into Fame and Renown, and so was called to the assistance of the better Sort (who will not be perswaded to die without Consulting more than one Physician, let his name be never so famous and his Skill never so great) there was a necessity for my meeting several of them one time or other and I being a Stranger to them, they presumed to tax me ever and anon *whether I were of the College*; now I being forced to answer still in the negative, they would often insinuate this Foolery into my Patient's sick Head so far that I soon lost by this means the squeezing many a wealthy Patient, and instead of becoming admired for my profound abilities, I was scoff'd at and rejected, as being, forsooth, "*not of the College*."

The "Dialogue" continues and Philater asks why he would not submit to the examination of the College, to which Momus replies, "I scorn to be examined by such as they or by any Physician living."

Of course this is from an avowedly hostile pen, but it is probably not very far from the truth. Of Harvey's book on the Scurvy nothing more need be said, except that it is in no way remarkable except perhaps for an ostentatious and pedantic display of knowledge, and indeed seems written

as much for the perusal of the laity as of the faculty. In 1685, a second edition was called for, this of course was after the final breach with the College. The dedication to the King is the same in both editions, as far as the reference to the College of Physicians, when there is a significant variation in the readings.

1675 EDITION	1685 EDITION
You have re-established a College of Experienced Physicians and to these your Royal Laboratory sheweth out of what material . . . &c.	You have encouraged <i>Learned and Experienced Physicians</i> and to these . . . &c.

The preface has entirely disappeared in the second edition, though the title page remains unaltered. Presumably the reference to the King's encouragement of "learned and experienced physicians" has in view the fact that Charles appointed Gideon Harvey his physician-in-ordinary, somewhere about 1680. John Partridge, the quack almanac maker, afterwards satirized by Swift, was also appointed physician-in-ordinary to the same monarch about 1680, so possibly he is included among the elect.

The preface and dedication in the 1675 edition of "The Disease of London," represent the high-water mark of Harvey's ostentatious adulation of the College. His two dirty little books on venereal disease which had previously appeared, though doubtless highly amusing to the Rochesters and Sedleys and to Charles himself, were not exactly calculated to further the cordiality of the professional relations between their author and the fellows of the College.

In 1676 we come to open warfare, started by the publication of Harvey's "Family Physician," which, although an attack on the apothecaries for usurping the functions of physicians, is also frankly a medical book written for laymen. Precisely what the apothecaries had done to rouse Harvey's ire does not appear, but in the preface to

the "Disease of London" we find the English apothecary contrasted with the French, much to the disadvantage of the latter.

I must confess our Apothecaries set an higher price upon their medicines and their labour too, than the French, and not without Reason; for you must agree to me that an English Apothecary who puts on three pairs of sleeves a Week and comes neatly about your Posteriora doth better deserve a shilling for giving you a Glyster, than a French Apothecary wearing his half shirt a month, Two-pence.

Moreover Harvey considers that medicines were neatly, honestly and skilfully prepared in London, and incidentally states that he regards himself as an authority upon the subject, since when he was a student he lodged at an apothecary's house in order to fathom the mysteries of the craft. But even in the 1676 work, the important London apothecaries are exempt from his animadversions; it is the country apothecaries and the "Little Apothecaries" who come in for the full force of the tempest.

Empiricks and Little Apothecaries inhabiting the skirts of the City and Country Villages do contract a guilt, not only by administering Physick ignorantly and without those qualifications that are absolutely necessary to a physician, but by overrating the prices of their medicines, to that degree that mean Families by a fit of sickness or two must unavoidably be ruined in estate and too oft in their health.

Apothecaries' bills frequently mounted to £20 or £30 in a fortnight, and our author mentions one which reached £50 in thirty days, and he says the net value of the stuff used was about forty shillings. A suburban apothecary seems to have made a good thing out of nine patients in as many months since he netted £1500 for his attentions and wares. Nevertheless the London apothecaries are good fellows and not guilty of these misdeemeanours, while "from the Little Apothecaries, by making your own stuffs you may save £9 in £10 or £48 out of £50," though

by what mathematical legerdemain these sums are equated we are left in doubt.

And then follow what are doubtless very good and practical directions for preparing medicines together with the prices of the crude drugs and necessary apparatus.

From the introduction we get interesting details of the cost of some preparations:

Then in prescribing if he [i.e. the apothecary] finds you to be Costive he sends you a Clyster at 2/6 which you may make yourself for 1½d. or 2d. A gentle vomit for an oppressed stomach, consisting of a little Carduus decocted in toto with the addition of three or four spoonfuls of rank Oyl of sweet Almonds, costs 2/6 while a Cordial Julep costs 3/6. In the case of a Surfeit three or four pints of Cooling Juleps shall be sent you every day, at two shillings sixpence (sic) or three shillings the Pint, which can be prepared by yourself at twopence or threepence the quart.

However there is some esoteric knowledge for the initiated since—

A Physician is as little Capable to ease Great Disease with Ordinary Medicines (which notwithstanding some of the ignorant for want of due Education pretend to do) as a Graver is able to cut curious Figures upon Steel with the ordinary tools of a Carver or Stonecutter; or a Barber to take off the hair of your Beard with a Chopping-Knife . . . Touching the *Great Medicines* it is very fortunate they are not yet arrived to the knowledge of the little *Apothecaries* or the prescribing *Surgeons* who using them without method, though sometimes they might do good, would certainly at most times do great mischiefs with them, and therefore every Physician ought to reserve them secret, by preparing them himself, and when necessary to be used to send them to the Apothecary to be exhibited, or to give them to his patients with what directions are required.

The end of this passage recalls the fact that as we have seen, Harvey himself had a secret remedy for venereal disease which helped to bring him into professional disrepute. Confirmation of the high charges of apothecaries is given by Swift in the "Journal to Stella," under the date Jan. 14, 1710:

Sir Andrew Fountaine lies still extremely ill; it costs him ten guineas a day to Doctors, surgeons, and Apothecaries and has done so these three weeks.

Again, a twenty-four hours' apothecary's bill for Lord Mohun came to three pounds and some odd shillings.

For the preparation of one's own medicines, the herbs and seeds were to be procured of the herbwomen, the drugs and "Physical seeds" of the druggists, while spices and dried fruits were vended by the grocers.

The Herbs *Baume* and *Carduus Benedictus* are to be bought in *Neugate-Market*, *Stocks Market*, *Gutter Lane* or *Covent Garden*, of the Physical Herb-women, by the Basket, the red Poppy Flowers by the Peck, Violet Flowers and some others are sold by the pint or quart measures. *Scurvey Grass* is sold by the Basket, also by the *Busbel* or *Peck*. For most Herbs if you buy them by the handful you must pay a Groat a dozen; or if you have occasion for less than a dozen a half-penny the handful is the usual rate . . . The value of twelve Pence in Herbs or Flowers will yield three pints of Water or more; in some Herbs it may yield two Quarts or five Pints, or if you have not the convenience of distilling, then you buy them from the *Apothecaries* at a shilling the Pint; or if you are only mindful to buy them when your occasions require, you need pay but a Penny for the Ounce, being the common price of all distilled Waters. The common price of most English Roots among the Herb-women is a Groat for a Pound.

The accompanying details for distillation may not be devoid of interest.

Put as many of these Herbs (being separated from the greater Stalks) or Flowers (pull'd from their Husks) as will fill two-Thirds, or at most three Fourth parts of the body of a Pewter Alembick with a Buckethead, without adding any Water to the Herbs (which too many *Apothecaries* do) and having closed the head to the body, by pasting slips of Paper, of the breadth of an Inch or a little more, round about the juncture with Starch or Yest, kindle your fire gradually, and continue it to a heat so

gentle, that your hand may endure it on any part of the Head; and so you will distill your Waters without smelling of being burned, provided you have put ashes to the thickness of an Inch and half between the plate and the body or bottom of your Pewter Alembick.

If you make use of a Copper Alembick, you must fill the bucket with cold Water, and as soon as you find the Water to be hot in the said buckethead, you must tap it off, and fill it up again with cold Water.

The reason why you are not to fill the body of the Alembick with Herbs, is because should you fill it up, the bottom of the cake of Herbs will be dried and burnt, before the top is half dry or distilled off.

In order to pound herbs and express the juice, they should be stamped in a stone or lignum-vitæ mortar, and, he continues, passed through a "fine canvass cloath in a small press."

The fine canvass cloath for strainers you buy at the Linnen-Drapers at ten-pence the yard. The small Presses you may buy at the Turners at *Hosier-Lane* next to *Smithfield*, from three shillings to six or seven, according to their bigness, or possibly you may buy one at second hand big enough for your use, at the same shop for eighteen pence or less.

The following are the details of the prices to be paid for the different pieces of apparatus and for some of the drugs.

THE PRICES AT THE GLASS-SHOP

Of a quart green Body.	12d.
Of a pottle green Body.	18d.
Of a gallon green Body.	22d.
Of a quart white glass Body.	18d.
Of a pottle white Body.	2s.
Of a gallon white Body.	3s.
Of a green glass quart Head that is filling a quart body, blind or with a Spout	18d.
Of a green Pottle Head	22d.
Of a green Gallon Head.	2s. 6d.
Of a green quart Retort Receiver	6d.
Of a green pottle Retort Receiver	8d.
Of a green gallon Retort Receiver	12d.
Of an Earthren pottle Furnace according to its bigness, and filled with a Sandpan, from 2s. 6d. to 5, 6, or 7s.	

Note. That those Bodies that are called quart Bodies always are to contain two quarts if they were filled to the top. Likewise a Pottle Body is to hold a Gallon, and a Gallon Body two Gallons.

Likewise a quart Receiver is to hold a Pottle; and the others proportionably the double.

We then have the prices of some of the medicines, and may note with envy that the "Best Nantz Brandy" costs sixpence a pint. In Queen Anne's time if we are to believe Swift, brandy had risen in price, since he says he bought a pint for two shillings. The following are the prices of some of the drugs:

<i>Bezoar Oriental</i> , the ounce from 30s. to 40s.	<i>Icthyocolla</i> , Ising-glass, the pound 5s. 4d.
<i>Bezoar Occidental</i> , the ounce from 16s.	<i>Musk</i> , the dram 5s.
<i>A Boar's Tooth</i> is worth 1s.	<i>Mummy</i> , the pound 5s. 4d.
<i>Castor of Russia</i> , the ounce 3s. 4d.	<i>Os e corde cervi</i> , the bone of a Stag's heart, the ounce 1s. 6d.
<i>Castor of New England</i> , the ounce 1s.	<i>Sericum crudum</i> , the pound 6s.
<i>Cantbarides</i> , Spanish Flies, the pound 4s.	<i>Scuttle-bone</i> , <i>Os sepia</i> , the pound 1s.
<i>Crabs Eyes</i> , the pound 5s. 4d.	<i>Sea-Horse Tooth</i> , the ounce 4d.
<i>Crabs Claws</i> , <i>chelicancro- rum</i> the pound 1-6.	<i>Sea-Horse Pizzle</i> , the ounce 4d.
<i>Cranium humanum</i> , A dead man's skull if found, is worth 8.9 or sometimes 10 or 11s.	<i>Skink</i> , piece 1s. 4d.
<i>Civet</i> , the dram 5s. 6d.	<i>Sevum cervi</i> , the pound 1s. 4d.
<i>Fox lungs</i> , the pound 2s.	<i>Sperma cæti</i> , the ounce 3s.
<i>Harts' Horn</i> whole, the pound 8d.	<i>Stag's Pizzle</i> , <i>Priapus-Cervi</i> , the ounce 6d.
<i>Harts' Horn</i> shavings, the pound 1s. 6d.	<i>Ungula Alcis</i> , Elk's Claw, a piece 2s.
<i>Harts' Horn</i> , burnt, the pound 1s.	<i>White Wax</i> , the pound 2s.
<i>Ivory rasped</i> , the pound 4d.	<i>Wax Yellow</i> , the pound 1s. 4d.
<i>Ivory burnt</i> , <i>Spodium</i> , the pound 1s.	

SEA SIMPLES

Ambergriese, the dram 18s.
Coral white, the pound 2s.
Coral red, the pound 4s.
Corallina, sea moss, the pound 1s.
Seed-Pearls Oriental, the ounce, from 4s to 8s.
Seed-Pearls occidental, the ounce, from 3s. to 6s.
Mother of Pearl, the ounce 6d.

COMPOUNDS⁸

Diascordium, the pound 3s. 4d.
Mitbridate, the pound 6s.
London-Treacle, the pound 2s.
Treacle-Water, the pint 2s. 8d.

Gideon Harvey's next work the "Casus Medico-Chirurgicus" is an interesting document in spite of the virulent attacks upon celebrated physicians. It purports to describe the treatment of Lord Mohun who was wounded in a duel in 1676, and as it is extremely detailed it affords a vivid sketch of medicine and surgery in the latter part of the seventeenth century. The book is without a dedication, but the "Epistle to the Reader" opens with the information that "*His Lordship's Aunt having acquainted me, that it was His Majesty's command I should write my Lord's case, the humble obedience I owed to so great and high Authority, hath obliged me to describe the said case in all its circumstances.*" This certainly appears a somewhat unofficial manner for the king to issue his commands, but whether the said commands were real or a literary fiction, there can be no doubt whatever that Dr. Gideon Harvey thoroughly enjoyed carrying them out down to the minutest details. Advertisements of the book which appeared, later say that it was published by His Majesty's command.

His Lordship received a Wound in the right Hypochondre, the Sword entering about an Inch more or less (by conjecture) below the short Ribs, almost perpendicular to the right Pap, and passing thwart down through the Abdomen

⁸A fairly complete list of the materia medica with their prices is given in the "Household Apothecary."

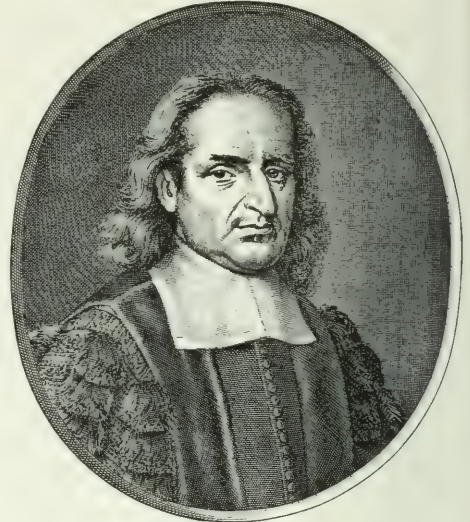
seemed to stop on the Os coxendix (or hip bone) somewhat above the Acetabulum. The sword felt very cold as it passed and on this side the termination near the Groin, made a prick or puncture so smart, that it caused his Lordship to fall down; which also occasioned a great Bruise or Contusion on the Hip; that is a contusion of the Musculi glutæi, and the Cutis above them. His Lordship got up again, and walked to some considerable distance, until he arrived at a person of Quality's house in . . .

The doctors⁹ who subsequently attended, are indicated by various fancy names. In the copy of the book which belongs to the Royal Society of Medicine, these were identified in a series of old manuscript notes.

The first person summoned was a surgeon, named Lamott, and stated in the MS. note to have been a servant to Dr. Coxe. The surgeon proceeded to probe the wound and then to insert a tent, after which he took eight ounces of blood out of the right arm. Harvey throws doubt on this man's being qualified to practice surgery, and after discussing the question adds, "I judge it was great presumption in him to offer to dress so great a person as his Lordship." The first physician summoned was Gideon Harvey himself who, as he says, had attended Lord Mohun for the past seven or eight years. But owing to his absence from town, various other physicians were called in and it is their treatment of the patient which forms the subject matter of his book. The first to arrive was Dr. Coxe, who masquerades under the nickname of Dr. Polyphemus; our MS. annotator says that the name was given to Coxe in derision, as being a very small man. He prescribed clysters,

⁹ The copy in the Library of the Royal Society of Medicine has been rebound. On the inside cover of the book as it was in its original binding was a MS. note of the personages concerned. This has now disappeared; I took a note of these names from the old copy in pre-war days—Th. Coxe, W. Charleton, Richard Lower, D. Whistler, Th. Wetherley, La Mott, James Moulins, Th. Warren (the apothecary).

ointments, fomentations and cordials, and in twenty-four hours the apothecary's bill alone came to over three pounds. Coxe then proceeded to call in Drs. Lower and Charleton, the former appears under the name of Dr. Timon and the latter is designated the "Ephesian Doctor."¹⁰



WALTER CHARLETON, M. D.
(From the Portrait in the Royal College of Physicians)

The first thing in debate was, what parts were hurt, for the discovery of which they commanded their French Surgeon to make his soundings, which he performed not by the Probe, but by his Fingers, screwing one or two of them into the Wound, and turning them round: upon the forcing them out again certified his Principals that the *Peritoneum* was divided, his Finger having grated quite round and round the Perforation, and so consequently the Sword must have passed through the hollow of the Belly.

We need not follow the discussion which followed, but it is interesting to find recorded that Charleton sat up with the patient at night "for which service he was ever saluted next Morning, with three Guinies, besides Pipes, Tobacco, Wine, Ale,

¹⁰ On account of his having written "The Ephesian and Cimmerian Matrons," 1658.

and paying the Apothecary for the *Opium* which was usually given when the Doctor watched."¹¹

The next physician to be summoned was Whistler, whose contribution to the discussion was the expression of an opinion that the left ureter had been pierced. Whistler was curator of the College, where he also resided, a fact which is referred to in the following passage:

Affairs daily appearing in a worse dress than other, it was prudently resolved among the forementioned experienced and learned Doctors, that since in all appearance a fatal determination would suddenly (in their opinions) happen, that to render their subtraneous consultations more authentick, it was highly necessary to admit into the *Cabal* Mr. Pres.¹² the Fountain of Physick, and Father to the Family of Physicians, likewise Dr. Nemo,¹³ their elder Brother and Elect, whose deep learning is so universally

¹¹In spite of Gideon's seeming disapproval there does not seem anything very extraordinary in Charleton's fees and refreshment. Presumably even a physician who is spending the night at a gentleman's house might be asked to have a smoke and some light refreshments, without doing anything very unprofessional. Dr. Payne mentions an anecdote of Sydenham, which I think Gideon probably had never heard, otherwise he would have retailed it for us. Sydenham was one day sitting at his window in Pall-Mall, not far from the site of the present College of Physicians, enjoying a pipe and the contents of a silver tankard, when a thief snatched the tankard through the open window and could not be overtaken before he got among the bushes in Bond Street, when he eventually made good his escape.

¹²The MS. note in the Royal Society of Medicine copy says "Ent or Micklethwaite." Micklethwaite was P.R.C.P., 1676-1681, while Ent held the same office 1670-1675, 1682 and 1684. It was therefore Micklethwaite who was summoned to Lord Mohun.

¹³Dr. Nemo is Whistler. Evelyn (Diary, March 20, 1683) says: "Dined at Dr. Whistler's at the Physicians' College, with Sir Thomas Millington, both learned men, Dr. W. the most facetious man in nature, and now Censor of the College." Pepys walked with him to survey the ruins of the Great Fire of London and also makes several references to him.

noted, that his abode cannot be unknown to any that shall but cast an eye upon the Frontispiece of that elaborate Dispensary of the last Edition.

According to Harvey there were great consultations respecting the administration of clysters, barley-water, and milk and water, while a discussion as to whether a



DANIEL WHISTLER, M. D.
(From a Print in the British Museum)

roasted pippin (ordered for the patient's supper) was to be cooked in brown paper or in a vine-leaf seems to have become acrimonious. Eventually the vine-leaf carried the day.

At this time the patient was taking or using:

- (1) An Hypnotick (or sleeping) Potion.
- (2) A Paregorick Liniment.
- (3) An Anodyne and Traumatick Glyster.
- (4) A Vulnerary Decoction.

Great indignation is displayed against the physicians because they refused to try "his Majesty's Vulnerary Drops," which "were procured by the Right Honorable my

Lord H., and sent from him to his Lordship by Monsieur."

Monsieur obtained a good rating for his pains, and the doctors refused to countenance the use of a medicine of which they knew nothing, in spite of its aristocratic antecedents, affirming that if Lord Mohun took it they would abandon the case.

After a few pages of declamation anent the iniquities of the College come some of the prescriptions ordered for the unfortunate sufferer, and which are stated explicitly to be exact copies of the originals.

One of these is a complicated "water," prepared by macerating snails together with various vegetable ingredients and ivory dust in a mixture of milk and Malaga wine for six hours and then distilling it. The distillate when slightly sweetened was to be taken in four-ounce doses thrice daily.

In all, the prescriptions issued from November 19 to January 4, occupy some twenty-one pages of this little work. Harvey says at the end of the list:

Observe that about every four hours, or a little more, there are four ounces of hot waters to be swallowed down, viz. *Aqua mirabilis* and *Epidemica*, besides 15 drops of burning *Spirit of Hartsborn* almost in every dose, which in 24 hours will amount to a Pint and half; and an half ounce or more of *Spirit of Hartsborn*.

The fashion of prescribing large amounts of cordials is referred to; these seem to have been dispensed in bottles with little silk caps, since there is a reference to the dire consequences which would ensue to the physician, if the patient's friends or relations missed seeing "the small Vials on the Table, with the Silken Stoppers."

In spite of all the remedies, or as Harvey unkindly insinuates on account of the large doses of hypnotics, suppression of urine occurred, which was relieved by Charleton who passed a wax bougie into the urethra and upon its withdrawal a free relief occurred.

The violent pains which the patient had in the back, raised a suggestion of renal calculus, and fifty crushed hog-lice were added to the medicine.¹⁴ These were considered a valuable remedy in such cases.

A little later follows an (imaginary) interview—

THE NURSE. O Mr. Doctor abundance of Urine this night. Pain and tortures so insufferably violent, that his Lordship flung himself twice out of bed, as if he had convulsions. His burning heat so great, that all night long my Lord held his hands on bottles of cold water. Fainted several times that I thought he would not have seen the Morning. Vomited and strained very oft, as if his eye-strings would have broke. My Lord drew his breath so extremely short and thick, that I verily believed he would have been stifled, for his Lordship would not suffer any curtain to be drawn, or any body stand near the bed-side, lest he should hinder the air from him.

Our patient is evidently in a bad way, and begs that Harvey may be sent for as he is again in town. According to that gentleman himself, the patient had frequently desired his attendance but had been informed that the physicians in attendance could not consult with him as he was "not of the College." However, now matters were come to the pass we have indicated, he was summoned to a consultation.

Being come to the famous Consult Room, I found two men, one much of the Meen of some Renegado-Divine or School-master turn'd to Physick, vested and tunickt with black; the other Campagne Tunickt with gray, smoking a Pipe of Tobacco al' Indiano. Whatever they seemed to me in the external, the Physical Eloquence of the former, expressed by a tongue so nimble, that my ears could hardly keep pace with him, and the solid judgement of the latter, did demonstrate them most excellent Physicians in the general; and in particular the one hath merited, among the Vulgar, the fame of a good Children's Doctor, and the other of a Woman's Doctor.

¹⁴Prescribed for December 11.

The consultation as may be readily imagined does not seem to have taken a particularly pleasant turn. An English surgeon next appears upon the scene.¹⁵ His name is not given but he is described as very eminent and Harvey refers to him as a "person of great knowledge and Experience, whose judgment I esteemed far beyond any of the Physicians." After a good deal more wrangling with the physicians, Harvey and the surgeon walked home together and agreed that a mercurial medicine was indicated, and it was arranged that the surgeon should prescribe it at the next consultation. The next consultation was not destined to pass off quietly, Harvey producing an anatomy book and a pharmacopœia in support of some of his statements, whereupon "one of the Physicians burst out into very scurrilous language, which without any further acrimony caused me to leave the Room and the Consultation." He had, however, not gone half-way down the street before he was called back and the offending physician was dismissed in spite of Harvey's protests. With the restoration of a little peace and quietness, the mercurial was prescribed. It will be noted that the prescribers specially plumed themselves on the fact that they were giving a *mild* mercurial. What a *strong* mercurial might consist of I do not know, but the gentle medicament contains twenty grains of calomel. The

prescription was signed by Harvey and one other doctor, and as the latter had consented to the administration of the calomel, he expected a similar concession on Harvey's part to the administration of powdered calcined hedgehog. The prescription for this medicament runs as follows:



Frontispiece to the "Pharmacopœia," 1677.
(The College of Physicians in Warsick Lane)

℞ *Erinac. cale. & subtil. pulv. 3ff. sumat. in cochl. j. Syr. Balsam. rubr. boris duodecim post bolum præscript.*

The bolus in question contained the dose of calomel. The next day cupping glasses were used, it is stated to the patient's great relief and to the abatement of his pains for over two months. A fearsome lot of medicines were next crowded upon the unfortunate patient, and the hedgehog was the cause of great controversy; finally Harvey

¹⁵If we accept the list of persons given in the old MS. note in the Royal Society of Medicine copy of the book, the surgeon was James Moulins. He was one of a family of surgeons, and it was presumably to his father Edward Moulins that Evelyn showed his "Tables" of arteries, nerves and veins (now in the Royal College of Surgeons' Museum. See Evelyn's Diary, April 2, 1649). The name was variously spelled Moulins, Moleyns, Molines and Mullins. The James Moulins with whom we are concerned was born in 1628 and died in 1686. He is mentioned by Pepys (Diary, February 3, 1666 $\frac{2}{3}$) as successfully trepanning Prince Rupert, for some trouble caused by an old gunshot wound he had received near La Basseé, in 1647.

and the surgeon informed the prescriber thereof that if he persisted in trying to enforce his prescription they would not consult with him again. Not to be out-witted, the physician paid a visit by himself, in the evening and again prescribed his hedgehog. His intentions were frustrated by Harvey's arrival, and the dose was not administered. "About this time his Lordship was on a sudden surprised with a Diarrhoea, or Looseness, so violent, that it put us out of our road for a while." The responsibility for this symptom was laid by Harvey upon the too frequent exhibition of guaiac, while the opposition party blamed the calomel. When the intestinal functions had been restored to something approaching normal, a large "Caustick" was applied in the left iliac region, followed by a second on the inner side of the thigh. When the sloughs made by the application of the said "causticks" had separated, the wounds were half open "for a long time, by putting in several *Ivy-pease* with a piece of flatted lead over them, to cause them to make a deeper impression."

More prescriptions followed, the sequels to which were (according to Harvey), polyuria, diarrhoea, faintings, syncopes, vomitings, and gripes. The expression of this opinion was followed by further wranglings and disputes until the several physicians took their leave. The arguments were based upon references to Hippocrates and other authors of greater or less antiquity; the patient, however, made some improvement, and was injudicious enough not only to go away and leave off all his medicines but to be careless in his diet inasmuch as he partook of "Coleworts, powder'd Beef, fresh Cod, Salmon, Tarts, and the like." Not only so, but he dined out and had several sorts of wine, although it is noted that the latter were taken in strict moderation. Injudicious it may have been, but perhaps hardly surprising after all the patient had endured. He was not suffered to rest in

peace, but on the reappearance of some of his symptoms, Harvey determined to try the effect of a gentle salivation. The "gentleness" of the salivation is indicated by the fact that "his Mouth was scarce sore, or his Face swelled; his Lordship did not salivate above a Pint and a half in 24 hours, neither was it continued beyond seven or eight days." Thus with various ups and downs the patient progressed and it was decided to try the effect of the Tunbridge waters. The journey proved too much, as the patient refused to be carried in a litter, and Charles, fourth Baron Mohun, died on Michaelmas day about seven o'clock in the morning. The death was followed by an autopsy performed at the instance of a coroner's jury. Here again there seems to have been a repetition of the professional amenities between Harvey and the physicians, since the latter crowded round the table so that he did not get a view. On their retiring he and the surgeon made an examination on their own account, and found a gangrenous condition of the left psoas muscle and the colon.

Towards the end of this little work are some autobiographical notes to which allusion has already been made and some acrimonious remarks upon other physicians with Harvey's own eulogies of himself.

Sure I am, I was never a Renegado-Divine, a School-master, or Trooper turn'd to Physick, or ever put the dice upon them by a forged *Diplome* from Oxford; neither am I a Meer *Velvetier*, that hath nothing but the Plush jacket on his Back, to shew what trade he is of; neither was I ever a member of a Society that harboured such, but scorn to be of it. I never gave *Mercurius Dulcis* to a Lady against Fits, that serv'd me such a jade's trick as to *Salivate* her, and put her in danger of her Life. I never advised a young Lady very lately to loose twenty or thirty Ounces of Blood, upon a spotted fever, which kill'd her. I have at no time administered *Laudanum Opiatum* so unskilfully, that the Patient never awaken'd again. I never gave Vomit or Purge that kill'd the

Patient in the Operation. I have not presented a Purge very lately to a young Gentleman, whose small Pox appearing, was mistaken by the Physician for Heat; which the next day, when the Purge should have been taken, were plainly risen all over the body, and caused the Doctor to go to Prayers with the Lady his Mother and the Family, to give GOD thanks the Purge was not taken, and made his confession, that it would have killed him, had he swallowed it, standing ready upon the Table for him. Thus you see Physicians sometimes tye a Sword over your head by a hair. Was it not the *Town-Idol* that by his Anatomical Craft directed the place of Incision in a Childe, whose *Anus* was imperforated, upon the *Spbineter* Muscal, whereof the Infant soon died, he having wholly missed the Venthole? Did he not a considerable time treat a Lady out of Town, for a Rheumatisme of the Shoulder, which proved a large Imposthumation ready to be opened, and upon apertion discharged above a Pint of purulent matter, and so was suddenly recovered, who otherwise by this Rheumatic course might have lost the use of her Arm, and possibly her Life? But enough of this at present; Only lest they should run into an inconvenience by a mistake of the name, I will give them this Advertisment, That there is one *Harvey*, whom the courtesy of *England* gives the title of Doctor, he lives somewhere near *Suffolk-str.* learnt his Trade of *John Pontæus*, and doth sell Medicines up and down the Country, though whether he keeps the Stage, I cannot inform them. Thus much for my own vindication.

The reference to the last edition of the "Dispensatory" is explained by the fact that from a closely printed duodecimo to which it had shrunk in 1651, it was restored to its pristine glory of a folio with a frontispiece representing the College itself, and a dedicatory title to Charles II and a copy of the dedication, from the first edition, to James I. The latter document is a curiosity and is couched in terms which would be extravagant if addressed to a ruler like Marcus Aurelius, but when such an intellectual prodigy as James I is the recipient the result is simply ludicrous. The following

short extract may serve as a sample of the dainty dish set before the Scottish Solomon and which he doubtless greedily devoured.

Placuit itaque Medicorum Collegia Londinensi (cujus Tu REX tutelar is Deus es) tam antiqua, quam nova pharmaca necessaria in unum consarcinare volumen, atque donum hoc levidense Tuis imponere aris; vel potius, Te non

SACRÆ MAJESTATI
SERENISSIMI CELSISSIMIQUE
PRINCIPIS
CAROLI SECUNDI
DEI GRATIA
ANGLIÆ SCOTIÆ
FRANCIÆ & HIBERNIÆ
MONARCHÆ
Fidei Defensoris
COLLEGIUM MEDICORUM
LONDINENSIVM
BENEFICIORUM MEMOR
HANC SUAM
PHARMACOPOEIAM
GRATITUDINIS ERGO
HUMILLIME OFFERT
CONSECRATQUE.

A

Dedication of the 1677 "Pharmacopœia" to Charles II.

sinente tantum, sed etiam jubente, Augustæ Majestati Tuæ offerre suppellectilem, qua subditorum tuorum corpora in posterum a pestifera morborum hic sarta tectaque præserventur. . . . quamdiu durabit Universi machina, memoriæ hominum Heroicæ Tuæ Virtutes observabuntur.

In 1683 appeared "The Conclave of Physicians, detecting their Intrigues, Frauds and Plots against their Patients." As may be gathered from the title, it is by

no means complimentary to those who form the subject of the discourse, and the dedication to "The Honourable Sir Philip Howard Kt. Captain and Colonel of the Queen's Troop of His Majesties Guards" is perhaps hardly calculated to pour oil on the troubled waters. Sydenham, truly, had dedicated his work on fevers to Robert Boyle who, though not a qualified physician, was an eminent scientist. Harvey's dedication to Sir Philip Howard¹⁶ is as follows:

Tam Marti quam Mercurio, was the just Achievement of the great Sir *Philip Sidney*; and he that would imitate *Plutarch* in the parallel of his Worthies, must to Sir *Philip Howard* award not only an equal, but a rank as far superior, as this latter Age excels the former. The felicity of your *Genius* has obtained an Experience so large in the faculties of the Learned, that even in ours you are received a Judge, as Impartial as Knowing; may I then presume to commit this Treatise, though small, yet great in Importance, to your Patronage and Suffrage, which is the submissive Petition of

Honourable Sir;
Your most Humble
And most Obedient Servant,
HARVEY.

Although in the introduction Harvey declares he is only satirizing the physicians of the Paris faculty, of course he is running full tilt against the English College the whole time. The anatomists come in for the full force of his wrath.

And what new Discoveries have they made in Anatomy these twenty years? Certainly none, and I dare presume to say, I myself have divulged more new Anatomical Observations, which are of great use, than all of 'em in a bundle; and yet I must confess, had I employed those Anatomical hours in the study of other parts of Physick I should have made a much better Physician, however as I am, I should be loath to stain my Education (which as you may read in my Casus

¹⁶Sir Philip Howard, seventh son of the Earl of Berkshire, is mentioned several times in Pepys' Diary.

Medico-Chirurgicus, is beyond any Conclave Physician) . . . etc.

And so he continues for a couple more pages. Truly, Gideon Harvey was not inclined to hide his light under a bushel—or otherwise.

A consultation of physicians is referred to as a "puny *Consiglio di sanita* (wherein an Anatomical killing Idol, a *Tom Tattle*, a School-master turn'd Physician, a *Western Bumkin*, that pretends to *Limbo Children* in the Small-Pox by a new method, or, more especially a Sir *Formal Flegmatick*, must be *Chairman*).¹⁷ The *Western Bumkin* is of course Sydenham.

A little further on we come across Harvey's well-known caricature of a new-fledged physician.

And now after all this *apparatus*, [i.e. a medical education] we will suppose our infant Physician so completely dress'd up with these fore-noted School, and Academick Ornaments, and his mind so gaudily painted and daub'd with the ancient, uncertain, and some new tickling notions in Medicine, that you may hear the clapper of his Tongue eccho (sic) from the East to the West-gate of your Town; Yet introduce him to a Patient, and grant that he, by appuising or resting his Velvet Body on his *Japan Crutch*, and fixing his Intellect, by drawing the broad-brimm'd Beaver over his eyes, seemeth to mimick a decrepid Gravity, and by that to weigh himself down to the bottom of your Belly, to rummage for the Disease; when he wakes (for he has only been in's dumps) out of this brown study, he shall no more know the Distemper, or the cause of it (though he hath read it in Authors twenty times) than the Skipper that never was toss'd on the Ocean before, pretends to find out *Bermudas* by his *Waggenaer*;¹⁷ Nevertheless doth he adventure to call for a Paper and Ink, to figure down a Remedy he never saw, being only acquainted with the bare name of it.

Next we have a diatribe against the illustrious school of anatomists and scien-

¹⁷i.e., the constellation *Ursa Major*.

tists in which probably Willis is especially aimed at:

If unto this you shall add that he is a great Anatomist (which, perhaps, appears no other than a Dog-flayer, or a Calf's-head dissector) and that he hath scribld a Treatise of the Heart, Brains, Lungs, Womb, or some other entrails (though of no use) that he is a member of a Herd¹⁸ of learned Quacks, Renegado-Divines, School-masters, Apothecaries and Barbers, a rare Hodge-pot of Physicians! or that he is drawn about streets in his own Coach: these suggestions shall prove a far more alluring bait for the unwary sick people to be caught by.

What the unlucky scientists had done to arouse this wrath we do not know, but a special chapter is devoted to anatomists, botanists *et hoc genus omne*.

Observation speaks this truth; He that dwelleth a long time upon any particular introductory part of Physick, seldom or never arrives to a considerate proficiency in his Art; so that He that shall (beyond the necessary and competent knowledge in Anatomy, Botany &c) Trifle away that season, wherein a young Student's intellectuals are in their prime and vigour, upon mangling of Piggs, Cats, Dogs, and Plucks; or upon gazing and muzzling seven years upon a Hedge, Ditch or Banks-side, to enquire for new Faces of Plants and Herbs, which the petulancy of the Earth doth thrust forth, to consume its excrementitious moisture, and sulphurous Sweats, and thereout form such Herbs, which Nature never intended for the health of man, but probably for Garniture of the Fields, or to poison Worms, Moles, Flyers, and other Insects, that destroy Corn, Roots, Herbs and such Vegetables which god hath provided for human use, I say, that neither out of such an Anatomist or such a Botanist, seldom or never grew a good Physician.

The vexed question of evolution is here solved for us! Apparently the petulancy of the Earth and Nature made the flowers and poisonous plants, the excrementitious moisture and sulphurous sweats made themselves,

¹⁸The Royal Society, or Royal College of Physicians?

while God is responsible for the making of corn, roots and herbs for human use. As regards the origin of the worms, moles, flies and other insects we are unkindly left in doubt.

Microscopy too comes in as we should expect for its share of abuse.

The necessary point of Anatomy consists chiefly in the Temperament, Figure, Situation, connexion, action and use of the parts; and not in superfluous uncertain, and probably false, and indemonstrable niceties, practiced by those, that flea Dogs and Cats, dry, roast, bake, parboil, steep in Vinegar, Lime-water, or *aqua fortis*, Livers, Lungs, Kidneys, Calves' brains, or any other entrail, and afterwards gaze on little particles of them through a microscope.

In some remarks on surgeons it would seem that a usual fee for lithotomy was twenty guineas, both the cases cited being (of course) fatal owing to the incompetence of the surgeon. In other cases fragments of the calculus are described as being left, to serve as foci for fresh trouble, while a urinary fistula resulted in another case.

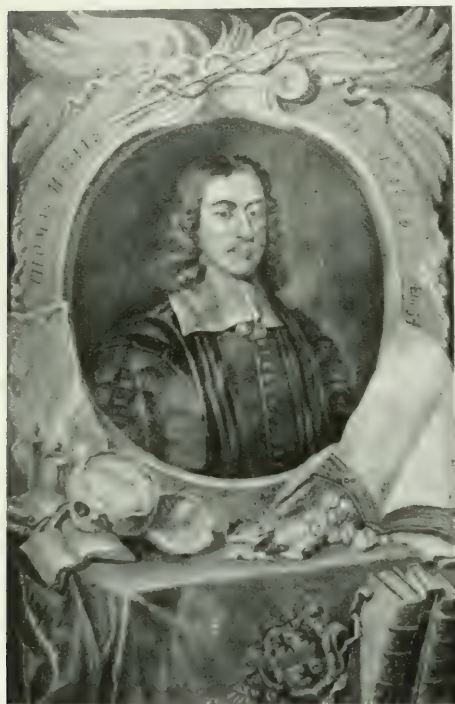
Sir Thomas Browne, of "Religio Medici" fame, is referred to under the designation of "that famed Doctor of *Norw.*" and is accused of butterfly-hunting on his way to a patient, and spending so long a time in entomological demonstrations to his coachman that the unfortunate patient was defunct upon his arrival.

Harvey was not above "pumping" the attendants upon cases under the care of other practitioners, and as he admits it himself and publishes the information elicited the most inveterate "whitewasher" will find any palliation of the offence somewhat difficult.

This same little book describes the scene which made Dr. Payne¹⁹ ask: "Did Bob Sawyer—late Nockemorf, in the 'Pickwick Papers' descend straight from the seventeenth century?"

¹⁹Life of Sydenham, 171.

Hypocrisie is an instrument he manages with incomparable dexterity, the Church-door shall no sooner be opened, but *Ecce* Mr. Doctor, sitting in the most visible Seat, Grave, Deaf, Dumb, and immovable, as if an *Apoplexy* of Devotion had seized him, out of which his *Apothecary* is to raise him, by knocking at half Sermon at his Pew-door, to fetch him away post to a dying Patient; by which means he



THOMAS WILLIS, M. D.

draws the Eyes of the whole Congregation after him; but instead of going to the pretended House of Visitation, they both drop into a *Cabaret*, there to pass the fatigue of a Forenoon *Sunday*. This knack of confederacy is to be repeated several Dominical days, until it hath made an impression on the People, that he is a man of importance, and of great Physick business.

The visit of the physician and his apothecary to the ale house during church time recalls an entry in the "Calendar of State

Papers" for Queen Anne's time. It is in the domestic series for 1702-3, and notes that Sunday observance was neglected, and that "there was last Sunday a great resort in Coffee and Chocolate Houses, and other Public houses, even in the time of Divine Service." That this state of affairs must receive attention is the purport of a note to Sir Henry Dutton Colt and others, while a similar note is mentioned as having been sent to Dr. Harvey. Very possibly this was Gideon Harvey's son, who on August 24, 1702 was appointed physician to the Tower. The son, however, became a fellow of the College, and, according to Dr. Payne,²⁰ did not leave any writings behind him. Probably he thought that one author of the name—he was a Gideon too—was sufficient in a family.

Cinchona bark was Harvey's *bête noir*. Perhaps the fact that it was sent to Europe by the Jesuits had some effect in forming his judgment.

That this tree is kept undiscovered by the foresaid Fathers from the Merchants, to whom they negotiate it, is upon no other account, than to entail the Commodity upon the Society, who make great profit by it . . . However I am of opinion, the foresaid Drug is Artificially prepared, and that none of it (though the best) arrives to us in its *puris naturalibus*, the Tree spoken of, or some other like it, affording but the wood, into which the bitter Tast is immitted, by macerating it a convenient time in the Juyce of a certain *Indian* Plant, to which that penetrating bitterness is peculiar. This having sufficiently insinuated into the pores of the Bark; it is exposed to the Sun, which knits it together into a solider texture. Hence it is that the Bark being reduced to Powder, and steeped in any Liquor, doth so easily part with its bitterness, as being adventitious to it, and not conate to its essential Principles.

He goes on to say that he could confirm all this by undeniable arguments, but will forbear as being unwilling to put more

²⁰Article: *Gideon Harvey*, Dictionary of National Biography.

sense into the heads of his "Friends" than Nature and their learning have already endowed them with.

It was hardly to be expected that anybody with such strongly expressed opinions about Jesuits and their doings as Gideon Harvey, would obtain even nominal court preferment under James II. He had indeed been made the subject of some rather cutting remarks in the "Dialogue" with reference to his post as physician-in-ordinary to the king, and it is unkindly suggested that he neither attended his Majesty nor received any fee from his appointment.

Charles II, as a particularly healthy and active individual, probably thought it an excellent practical joke upon the College of Physicians to give honorary medical appointments to persons like Gideon Harvey, Archer, or even Partridge. James II, apart from his theological fancies, was too much occupied in certain special practical jokes of his own upon the British Constitution to bother himself about teasing the College. When his ideas of humour had materialized by making himself and his wife and son exiles, Gideon Harvey again blossomed forth with a new government appointment. This time it was as "Their Majesties Physician to the Tower." Presumably William III being a chronic invalid did not care to advance him to any more intimate post in the Royal household; at any rate Harvey retained this appointment until his death. Accordingly his next book "The Art of Curing Diseases by Expectation" which appeared in 1689, is stated on the title page to be written—"By *Gideon Harvey, M.D., Their Majesties Physician of the Tower, and Fellow of the College of Physicians of the Hague.*"

Among a deal of very scurrilous abuse it contains some very just and true observations upon various pharmacopœial remedies in use at the time. The book is dedicated to the Marquis of Halifax then one of the

most prominent figures in the political world:

To the Right Honorable my Lord Marquis of Halifax, Lord Privy Seal, and Speaker to the House of Lords. *If annual Oblations from Gratitude were celebrated by the Ancients to those, that had been somewhat extraordinary serviceable to the Publick, a perpetual Anniversary is more*



GEORGE SAVILE, Marquis of Halifax.

justly due to your Lordship's most successful Endeavours, and Zele for the Laws, Liberties, and the Protestant Religion; wherefore may I among the rest make humble offering of these my little Labours to your Lordship's Immortal Name, as a grateful Testimony that I am

Your Lordship's
most submissive and
most obedient Servant,
Harvey

The main thesis of the book is that although recoveries may occur even under the treatment of the physicians (of the College) yet they are due not to the exhibition of medicines, but to trust in the doctor and his medicaments, aided by "abstinence from Flesh and strong Liquors." He records two cases, in one of which powdered clay-pipe

was administered under the name of pearl, while in the other calcined potsherd masqueraded as a preparation of gold.

The medicinal use of iron or steel is strongly deprecated, and those who prescribe it are referred to as "Farrier-physicians"; it is held responsible for irreparable injuries to the brain and nerves, and the production of palsies, convulsions, and extreme weakness of the joints.

The excessive bleedings which were even more in vogue in France than in England Harvey rightly condemns and urges his cause with characteristic vigour. Asses' milk, which by some was strongly recommended for phthisical cases, also comes in for a share of abuse, but at the same time he seems almost to have anticipated the modern treatment by fresh air:

There being but one medicine, far different from the forementioned, that is impowered to answer all the Indications of a pulmonick Consumption. From the tonsure Remedy, by cutting off the hair of the Head, or from issues from the Arm, no more help can be expected, than from paring the Nails of the Fingers and Toes in an Ulcerous Consumption; though in some few cases, three or four Causticks applied to suitable parts of the Breast, in order to so many fontanels, may prove very advantageous, and it is beyond all objection, that the change of Air is most conducing to recovery, and a *causa sine qua non*.

The uselessness of medicines to dissolve stones in the bladder is strongly insisted upon. He relates a story where a physician was recommended to a Prince of Condé to cure his son of stone in the bladder by dissolving it *in situ*. This was, however, not allowed until the doctor had tried his skill upon "another Boy of meaner Extraction and troubled with the same Disease." The lad dying after some days' torture was made the subject of an autopsy and the stomach found "corroded and ulcered in several parts of it." Too frequent catheterizations and soundings also receive criticism, as

also the performance of lithotomy upon insufficient evidence of the presence of a calculus. The effects of an unskilful lithotomy are described as "Inflammation of the *Sphincter*, bloody Urine, Excoriations, Ulcers, continued gleans by injuring the prostate, and involuntary miction (*sic*), strangury, dysury, total suppression of Urine and almost all Diseases incident to the Bladder."

The use of various amulets, both as prophylactics and as cures, still persisted and the practice is ridiculed in this little work, although upheld and recommended in quarters where we should but little expect it.

That a Spider, Toad, or Mercury tyed about a man's Neck is a certain defence against the Plague; or that a Bezoar Pepple, the *Goa Stone*, Pearl and the like, are infallible curatives of that and all other malignant Fevers; or an Eel-skin fastened to a Woman's Thigh doth dispel hysteric fits, are part of the foolish *credenda* of Physicians.

Harvey next proceeds to a critical examination of the pharmacopœia upon which the resources of a vigorous and not too refined vocabulary are exercised.

My next business therefore is to examine the box of Tools of the Physician, which is the Dispensatory, or the Pharmacopœa (*sic*) that for number and quality exceeds the tools of an hundred Artists, I may well say, of all that are in *Europe, Asia, and Africa*, there being nothing under the Earth, on it, or above it, or what is contained in the Elements, and what is consistent of them, or at least belongs to it. There is *Japan Earth, Armenian, Lemnia, Tripoli, Strigonia Earth, &c.*, all sorts of Water, that Heaven and Earth afford; all Minerals, all sorts of Dung and Piss, Serpents, Toads, Spiders; in fine there is nothing in the Universe but what is in the Gibblets of the *Pharmacopœa*, or Physick Warehouse.

A page or two further on he refers to "that *Pharmacopœa* (or rather deformed Copy of Medicines) which I once in a Discourse, and out of mere Compliment

and Raillery, did aver to be the best” The allusion doubtless is to the passage in the dedication of the first edition of his “Treatise on Scurvey,” and is a rather clumsy attempt at escape from the fulsome adulation of the College and its doings which is expressed therein.

Chapter XX is entitled: “*Detecting the most senseless, gross, and absurd Errors in the Composition of Venice Treacle and Mithridate, also of the other Narcotic Medicines.*” To Harvey must certainly be given the credit of having made a strong attack upon these extraordinary concoctions, more than fifty years before Heberden published his work on the subject.²¹ Perhaps it was his personality that occasioned the protests being passed over and the survival of theriaca and mithridate for nearly a century longer. On the other hand his fulminations against things in general would discredit him when he was attacking real and gross abuses. He may be given here at some length in his own words.

I do aver that *Diatesseron* is a Compos. a million of degrees beyond *Venice Treacle* or *Mitbridate*, both of which your Physicians will have to ride Admiral and Vice-Admiral over all their wretched Squadron of Compounds. One monstrous Thunder-bolt of a Medicine will not serve turn, there must be a pair. And that they shall be exactly prepared at *Paris*,²² their Wisdoms have thought fit to depute a brace or two of Censorious Coxcombs to visit the Treacle and Mithridate Pots in the Shops. And doth one *Paris* Physician in a hundred know all the Simples when he seeth them? I dare be confident that not one in forty is acquainted with the faces of the tenth part of them The *Venetian* Magistrates and Physicians well knowing that nothing can prevent Fallacies or Counterfeits of such thrice noble Medicines, unless they see all the Ingredients prepared singly and ranged in several *Glasses*, they never fail being present at the jumbling of them together, and affixing their Seal to their true

mixture, to serve for a Traffick all *Europe* over. A Lyon, a Bear, a Tyger, Wolf, Cat, Dog, and a hundred wild Beasts more being put together, could not make a greater howling in the Air, than all those untamed Simples in Mithridate and Treacle would do in the Stomach, if the *Opium* that's among them did not quiet their Fury, and bridle their Enormity. The experiment of this observe in Matthews's Pill where the poysonous effort of the white Hellebore upon the Stomach, is by the *Opium* bound up, by clowding the vital and animal Spirits, until it's passed into the Guts, when and where the Narcotick Vertue being spent, that malignant vegetable is at liberty, to vent the remainder of its force upon the Intestines in moving of Stools.”

The incompatibility of the various ingredients makes great subject for mirth, and leads to the suggestion that an effective method of preparing the medicine would be to—

Take a madman out of *Betlehem*, who hath the humor of mixing upon him, open all the Drawers, Pots, and Glasses of the Physick Shop unto him, it will not be possible to make a more irrational jumble, and which shall not equal all the Virtues of *Venice Treacle*, provided a proportionable weight of *Opium* be added by any of a little more sense than our *Betlehemite*.

Generally Gideon Harvey refers to other physicians under various pseudonyms, but this volume contains some stories of the great William Harvey and others, when the names are given in full. After referring to the evils of studying anatomy too much and medicine not enough he refers to—

One, that was the greatest Anatomist of his time, and no extraordinary Physician, namely *Dr. William Harvey*, whose erroneous Judgment was very remarkable in the prescription of a Purge for Esq. *Rainton* of *Enfield*, where the Apothecary refraining to prepare more than half the proportion, notwithstanding gave him four-score stools, which otherwise according to the Doctor's measures, must unavoidably have scower'd him from the close Stool into the other world.

²¹ Heberden. *Essay on Theriaca*. 1745.

²² “Paris,” of course is London.

On another occasion William Harvey, Wright, Prujean, Bates and others were in consultation about a patient whose most prominent symptom appears to have been an abdominal pain which deprived him of the use of his limbs, strength, appetite and digestion. William Harvey diagnosed an inaccessible aneurysm and regarded the case as incurable. The patient desiring another opinion visited Sir Theodore Mayerne who was then lying bed-ridden at Chelsea. This eminent physician informed him that—

He was the second or third Patient he had met with diseased in the same kind, and very bodily expressed he would cure him, but with this inconvenience, that he could throw the cause of the Disease either into his Arms or Legs, according to the choice he would make of those Limbs, which he could best spare, or which of 'em might be more or less useful to him, without consulting the Will and Pleasure of GOD Almighty, an Arrogancy unheard of, and savouring more of the Atheist (as too many of 'em are) than a pious Physician, as then especially he ought to have been, being not many stages from his journey's end.

In view of the fact that the patient had a great deal of writing to do the legs were selected as the recipients of the patient's malady upon the doctor's assurance that a month or six weeks at Bath would put matters to rights. Gideon Harvey is dissatisfied with this diagnosis and proceeds to enlighten the reader on his own account, though he can hardly have been old enough²³ in spite of his vaunted precocity, to have been consulted in the case. If the diagnosis of William Harvey²⁴ and his fellow consultants and of Sir Theodore were unsatisfactory, that of Gideon Harvey is certainly not lacking in detail, however deficient it may be in lucidity.

You are to apprehend, that the cause of this great Disease was an obstinate obstruction of

²³ Sir Theodore Turquet de Mayerne died in 1655.

²⁴ William Harvey again almost certainly, though his name is not repeated.

the *Glanduls* of the *Mesentery* immensely swelled up, and hardened by coagulation of tartarous and slimy Humors, making a strong pressure upon the *Arteria Magna*, which by a potent renixe did duplicate its force of Pulsation, that imposed on Dr. *Harvey* the false notion of an *Aneurism*, which ought rather to have been termed a *Vibration*. The conglobated tumor by compression causing a coarctation upon the



SIR THEODORE TURQUET DE MAYERNE.
(Portrait in the National Gallery)

Nerves, milkie and other Vessels, occasioned the great Weakness of his Limbs, and Atrophy, &c. and by huffing up the Bowels against the Diaphragm, rendered his respiration extraordinary difficult. The grand empirical Medicine (from which his Father *Turquetus*, usually by the French nicknamed the *Turc*, had got great Reputation by selling it publickly on the Stage, whom Sir Theodore in his younger years had attended in that employ if common vogue may be credited)²⁵ being in a proportionable Dose mixt

²⁵ Probably all lies, but note the saving clause at the end. This forms a good specimen of Gideon's milder form of abuse.

with some gentle Purgatives, had the success to dissolve those gross glutinous Humors, and through their weight and tendency downward, throw them down into his Legs, as being parts much weakened, and consequently more readily suscipient. Nature by being disburdened of that load, that had hitherto obstructed the free course of his nutritive and animal Juices, was rigorous enough to restore the Bowels to their former Functions, as afterwards the Bath proved no less effectual in retrieving the use of his Legs.

An illustration of the gently persuasive methods of cure then in vogue is given in a little anecdote of a tailor who was afflicted with sciatica. On consulting a doctor he was questioned on three points: Firstly, whether he could give up work for three months; secondly, whether he could afford to pay fifty pounds; and thirdly, whether he could "contemperate his passions, in enduring the Part to be laid open to the bone, by cutting or burning." The patient declined the treatment though he did not object to the time or expense. A six weeks' course of treatment at Bath restored him to health.

This little book on the "Art of Curing Diseases by Expectation" finishes up with an attack on the London College of Physicians and a Eulogy of the College at the Hague and of the University of Leyden. Almost on the last page he refers to other Universities which he considers it desirable for a budding physician to visit, for reasons "which I have exactly described in a Treatise without my Name to it, called the *Accomplish'd Physician and Honest Apothecary*. Printed for W. Thackery in Duck Lane.

That Tract, *The Noble Man's Case*, *The Conclave of Physicians*, and these do all variously express the Mistakes, Errors, Frauds, and unworthy Practices of Physicians, whereof every day gives new Matter, and will do to the World's End.

The late Dr. Payne in his notice of Gideon Harvey in the "Dictionary of

National Biography" refers to the "Accomplish'd Physician" as being undoubtedly Gideon Harvey's, although commonly ascribed to Christopher Merrett, and, indeed, it is listed under Merrett's works in the British Museum catalogue. The above passage and the advertisement to which we have referred, however, put the matter beyond doubt.

On the title page of "A treatise of the Small pox and Measles," published in 1696, its authorship is thus given—"By *Gideon Harvey, M.D.* His Majesties Physician of the Tower and not of the College of Physicians." He is obviously still unrepentant of his attitude towards the College and in the preface more than hints that obstacles had been thrown in the way of its publication, presumably by the College.

The Design of this Tract, and the doubtful Reflexions it might cause, did occasion some to exercise their industry to delay the Progress of it, by a bait that took very easily with the P-er, or else this would have come out Two months or Ten Weeks ago; and now its carelessly finished, a Barrier is put by the same Parties, to the Common Ten Shilling Way of Publishing Books, so that the Publisher is not to be prevailed with to give it room among his Advertisements of Puppy-dogs lost, and Geldings Stol'n or Stray'd.

Precisely what had happened, and to what all their complaint refers we do not know and probably never shall. It looks as if some of the more frivolously inclined of the College of Physicians or their friends had been indulging in some pranks with his printer and publisher. The first page of the same preface contains a reference to the "Gang of Physicians," while the second page of the book proper refers to the fourteen years which are commonly spent nominally in medical studies as divided into seven years devoted to chattering in halls and schools, with the reading of play books and romances, five years or so given to drunkenness and debauchery, with a final

year given up to a "Candle-light reading of some musty Physick Author."²⁶

He next deals with some current ideas about measles and smallpox, according to which both of these diseases were regarded as a kind of physiological original sin derived from the mother, and moreover an attack of one or the other was considered as a necessary incident in the life of everybody. To his credit he controverts both these notions, though his arguments do not seem to be very conclusive. He considers the fetus *in utero* to be so closely enveloped and protected that transmission of disease through the maternal blood is held to be impossible. Pursuing his arguments he hits upon what seems to us a singularly infelicitous analogy, that of an egg, which is so enclosed that its yoke cannot be thought to be affected by the least taint of impurity. Perhaps our friend's ignorance of bad eggs is of the same character as his neglect of the English language and literature and other of the small affectations he was so fond of parading. The question was sometimes asked how anybody ever escaped having measles or smallpox, and the orthodox reply seems to have been, that they undoubtedly would have been attacked had they lived longer. At any rate, such a remark about the incidence of smallpox indicates a state of affairs to which we are fortunately strangers.

The cause of the squeals of new-born babies is due to their exchanging their secluded intra-uterine conditions of life for

²⁶In this connection we may note that one at least of the physicians who came in for Gideon's polite attentions—Dr. Charleton—was certainly able to command literary influence of no ordinary kind, since one of Dryden's "Epistles" was addressed to him. From all we know of Dryden, it is by no means impossible that he should use his influence to surreptitiously plague the adversary of his friends, without descending to a personal controversy. How the mischief was carried out and who was its actual author, we do not know, but such a solution as we have suggested seems by no means improbable.

exposure to the air and consequent buffetings by particles of all sorts, shapes and sizes.

Some crooked, contorted or skewd; other straight, globular; some sharp pointed; others blunt; some are benign in quality and effects, others more or less Malign, many of these particles are Saline, others Sulphurous; as they are all various in mixture and figure, so in their Motions and Positions.

As a result of the bombardment of the body by these variously shaped particles they effect an entrance into the body by the pores of the skin, and the incidence of infectious disease is due to the malign varieties of these particles. From this it is clear that Gideon Harvey regarded the causes of epidemic disease as being particulate in character; but of the "*Contagium vivum*"²⁷ theory, which was re-enunciated by Athanasius Kircher in 1675 he does not make any mention, the ill effects produced by his particles are due to the awkward shapes of the latter. And yet he comes near to the mark since, wishing to demonstrate the possible occurrence of his variously figured particles in some samples of air while they are absent from others, he uses as an analogy the numberless microscopical living beings which may occur in different samples of water. Immunity from infectious disease is attributed to the pores of the skin mechanically resisting the entrance of infective particles by mutual want of adaptability of shape.

The problem of immunity as commonly conferred by one attack of the smallpox, he tackles by adopting the analogy of an earthen pot when it is exposed to the fire. By judicious heating the particles of fire are enabled to enter the pores of the pot without doing any harm, similarly an attack of the disease seasons the pores of the

²⁷For the development of the "*Contagium Vivum*" theory see Singer. *The Development of the Doctrine of Contagium Vivum*. London, 1903. (Privately printed.)

skin so that the pestiferous particles find an easy passage and do not damage the body in subsequent transits. He, however, admits that there are certain difficulties connected with his "pestiferous particles" and mentions the fact that in the case of mariners upon the Guinea coast, those that sleep on shore frequently become infected with malignant fevers while those who sleep on the ship more often escape them. This he explains by remarking that the different kinds of air ought not to be regarded as healthy or otherwise from their "thinness, grossness or clearness," but from the proportion of malign particles which they contain. A little further on he explains the circumstance that some species of animals are attacked by certain diseases while others are immune, to the fact that the shapes and sizes of the particles are specifically adapted to different kinds of beasts.

The forms and relative sharpness of different particles he regards as being productive of stone in the kidney and bladder, and proceeds to a demonstration of their existence in urine by allowing it to evaporate on glass plates with or without the addition of various reagents such as acids. To this he makes reference in several passages in his books.

This book concludes with some quite good observations upon the undesirability of administering exotic medicines of unknown composition such as the famous Goa-stones.

Gideon Harvey's last book, "The Vanities of Philosophy and Physick," was published in 1699 and reached a third edition in 1702. It is a queer discursive kind of treatise in which its author revises some of his old ideas, speaks indeed decently of the physicians whom he had previously reviled, and holds forth upon angels, devils, witches, Jesuits, human souls and indeed upon a sufficiently numerous and heterogeneous collection of matters and persons. The preface contains an elaborate attempt to

prove that Descartes was either a Jesuit or an emissary of their society, though precisely what bearing the matter has upon the subject in hand is a little difficult to estimate. He seems, moreover, to have changed his views somewhat regarding the study of science and its value to medicine which he considers is

Very little advanced in the practical part since Hippocrates or Galen; and diseases continue as much unknown, as their cures are unsuccessful, most of them being perform'd merely by Expectation.

The latter part of the proposition indeed he had maintained previously in his little tract on the "Art of Curing Diseases by Expectation;" but whereas in his earlier efforts the necessity for clinical study and the futility of scientific and experimental method were the points emphasized, in the work we are now considering the thesis maintained is the necessity for the study of natural philosophy. One point in the preface deserves notice, and that is the stress that is laid upon the fact that the nasal secretion is not derived from the brain, as was commonly supposed at the time. This had been established by Lower in his "*Dissertatio de Origine Catarrhi*," published in 1672, and where, as pointed out by Cushing, we have the first hint that the pituitary is concerned in the formation of an internal secretion. It will be remembered that Lower had been the subject of some of Harvey's most virulent abuse in earlier days.

The end of the preface contains a characteristic touch:

I ought here to justify my self against a Complaint that is frequently made, for concealing the description of the Elixir mentioned in this Tract, as also of other Treatises formerly published. To this I must reply, that having heretofore disclosed several very good Medicines, which have since and still are, made use of by every little Empiric and other prigs, that are unskilful enough, and by misapplication have

sometimes proved to be detrimental to Patients, I am not very free to communicate some of 'em, though by cause my labour in that kind may not be lost, I have imparted them to my son, who is a Physician also, and may hereafter divulge 'em as he thinks fit.

By all of which we see the writer to be the same irrepressible and incorrigible individual as ever, and probably shall not place too high a value upon the apparent improvement in manners manifested in this work.

It was of course the mention of a secret remedy for venereal disease in his popular—and very dirty—little book upon the subject which brought Gideon Harvey into open collision with the Royal College of Physicians, and yet here in a book wherein he professes to have altered many of his views he deliberately resurrects a fact for which we should imagine he would desire the lapse of time to provide a decent burial.

The old affectation crops out again in the introduction where he indulges in explanations concerning the why and wherefore of the publication of the book. The usual reasons for publishing books are, we suppose, either amusement, gain, to secure an advertisement, or to propagate some idea of the writer's. Harvey gives as his reason, the fact that he wrote so badly that he had considerable difficulty in reading his own writing, and as he often desired to refresh his memory from his notes he decided on printing and publishing them. This kind of nonsense is of course on a par with the statement in his first book, that he had never read an English book in his life. He certainly changed his mind respecting dedications since the introduction opens:

Here is no stout Dedication to any *Illustrissimo* for a Protector, who beyond all peradventure knows nothing at all of the matter; and though you should flatter him with all the *Hyperboles* of his Family or Ancestors, and of his great Endowments, and Heroick Virtues, yet he would think himself not paid in full,

for lending of his Name to adorn your Frontispiece.

Here there is certainly a change which suggests that Harvey's fulsome dedications had somewhat failed of their purpose.

Harvey is perfectly sound in his denunciation of the attempts at effecting transmutation of metals, and records a story of one of the quack-chemist fraternity who let a friend of his in for the expenditure of some forty pounds.

The steps these Imposters usually make to draw in the unwary, that have some Money by them, and desire to improve it, are; first, they Judg (*sic*) it necessary to be clothed in some rusty old black Habit, to shew they have been very studious, curious and industrious in managing of the Coals, until they had brought their matters to perfection, at the end of which they tell you, all this Money was spent. Then they shew you a piece of rough mixt Metal, of which if there be a few Grains of Gold in it, they will impart a piece of it to you to carry to the Refiner, who soon doth separate the Gold from all the Dross, which they expect to have returned to them again. If this takes, as oft it doth, they go on in the manner an Acquaintance of mine was lately managed. This person having well swallowed the bate of a pretended *French* Chymist, was easily encouraged to lay down forty Shillings to set up Furnaces, and buy Retorts and Alembicks. The next charge was the like sum to buy Materials for to prepare Gradatory Waters, and the last was (now his man was got so far in) to exact Thirty or Forty pounds of him in Silver Moneys to be turned into Gold, or more if he pleased, since the charge and Trouble of converting a greater sum would be no more than a lesser. The Money was told down to him; a few days after he brought him a mixture of Lead, lithargyr of Gold, and some other Drossie things together in a Crucible, and told him the work was completed, and he might carry it to the Refiners, withal giving him the several Receipts to make the Gradatory Waters. The person soon found he was cheated, and the Money all sunk, he askt me, whether the Chymist might not be prosecuted for a Cheat, of which I made no manner of doubt.

The sequel is not related.

The first chapter deals with herbs, herbals, and books of household medical receipts. An instance is recorded of an individual whose house was "burgled" with the consequent loss in cash of some hundred pounds and his old receipt book "finely cover'd," the loss of the book being infinitely more important to him than that of his cash. The book, excepting the blank sheets remaining, Harvey considers "would have been over-valued at Two Pence." Another instance of the value put upon these household books is mentioned. The maid-servant of a linen draper, having made acquaintance with one of Harvey's maids, surreptitiously borrowed her master's receipt book with a view to its transcription by her friend. Some delay having occurred in the operation, the loss was detected and the worthy draper who had discovered the whereabouts of his treasure proceeded to interview the borrower, but as her answers were unsatisfactory, repeated his enquiries and eventually called upon Harvey himself. The latter promised speedy restitution of the lost treasure, but before handing it over took a look at its contents. These included:

An excellent way to Stew a Calves-Head with Oysters, another to make Fritters and some other pieces of Cookery; also a Salve for Chilblains, a Plaister for all sorts of Swellings, an infallible Drink for the Stone, a most certain Remedy against Consumption, and all Coughs of the Lungs, being a Syrup jumbled of most strange Materials. Varieties of other Infallibilities of Remedies equally foolish I pass by, and shall only remark the immensity of this man's Relief, by his Mournful Countenance whilst his Book of Secrets was absent from him, and to what Serenity he was restored upon his Reinstatement.

Chapter three is a fearsome piece of business and occupies nearly two hundred

pages; it is entitled "*Of Corporeal and Incorporeal Philosophy*." Here we have an hotch-potch of angels, devils, human souls, witches, Roman Catholics (much to their detriment) and an explanation of the Mosaic cosmogony as related in the earlier chapters of Genesis. Chemists come in for a terrible castigation, and after a reference to the terms acid and alkali, we are informed that—

They are terms that were originally employed by Chemists, consequently absurd, and improper enough; for certainly among the Herds of Men, these are the most impudent, ignorant, flatulent, fleshy and vainly boasting sort of mankind. They are the Pest of *Germany*, and the Vermin of all *Europe*.

A sentiment with which all of us will doubtless agree after their recent benevolent efforts in the making of poison gas, so perhaps Harvey was to a limited extent a prophet, in spite of the fact that he is invariably severe upon soothsayers and all their kind. In this work he seems to have retreated somewhat from his perfectly sound views upon the uselessness of such heterogeneous conglomerations as theriaca and mithridate, and even to speak without acrimony of some whom he had lampooned before.

As I said in the beginning of this paper, Gideon Harvey is interesting merely from the sidelights he gives us of the medicine of his time, and, as he generally seems to have written for the laity, he is fairly explicit. Of course, also, his portraits of the eminent men of his day are caricatures, but even a caricature retains some semblance of the original. He seems to have been a man of reasonable capacities and considerable powers of humour, but ruined himself in a professional sense, by his unbounded conceit and arrogance.

A NOTE ON THE LAST ILLNESS AND THE POST-MORTEM EXAMINATION OF MARCELLUS MALPIGHI

By JOHN DONLEY, M.D.

PROVIDENCE, R. I.

WHILE looking through the works of George Baglivi a short time since, I came upon a brief description of the last illness of the famous Marcellus Malpighi together with a report of the findings at the post-mortem examination. I have ventured to translate it with the hope that it may prove to be perhaps as interesting to others as it is to me.

And who was George Baglivi? He was one of that company of brilliant young men in medicine who were produced so lavishly in the sixteenth and seventeenth centuries; so lavishly, indeed, that we who move with slower pace are astonished by a display of genius as unique in originality as in fruition it was precocious. Nurtured by the Renaissance these young men are busy with Nature, and while many of their older contemporaries are still vainly trying to clip the wings of progress with the rusty shears of decadent dogma, they are reclaiming for us the pure Greek tradition in medicine. Among this band of youthful enthusiasts, the Praetorian cohort of science, belongs George Baglivi who was born in 1668 and who died in 1707. They called him an Italian Sydenham. His life was all too short, for by the time he had lived thirty-nine years, his fiery spirit had consumed his frail body, worn out by teaching, research, and practice.

Having been graduated perhaps at the ancient School of Salerno, he studied at Naples and then set out upon a tour of the schools and hospitals, for he says: "I was fond of nothing so much as visiting the schools of Italy, and trying what pass they had brought the Practice of Physick to,

after so great a noise of New Discoveries." At Bologna he attended the lectures and became the esteemed friend of Malpighi, then the greatest of living anatomists. The results of his peripatetic observations and experiences he published in his "Praxis Medica," one of the most interesting books written in the seventeenth century. Soon after the issue of his "Practice" he was elected to the professorship of anatomy at Rome where he lectured not only on anatomy but also on chemistry and practice. In 1697 he succeeded Malpighi as foreign member of the Royal Society of England, an honor he valued highly. His second important work is entitled "De Fibra Motrice," a book of much worth in which he lays the foundation of the "solidar" pathology.

A few short quotations from the "Praxis Medica" will serve to disclose the spirit and flavor of Baglivi's mind. "Being surrounded with an infinite variety of opinions," he writes, "I was at a loss to make a just choice; but at last I came to a firm resolution of siding with none, and of pursuing the truth with vigor and diligence, without any other guide than reason and experience. In pursuance of this resolve, I spent no small time in making exact and minute observations of diseases, and was quickly sensible that by this means I made a greater progress in Physick in a few months than I had done before in so many years; and that nothing is truer than that old saying of Manilius,—'Artem experientia fecit, exemplo monstrante viam.'" In another place he remarks; "The ant who gathers food at random and uses it immediately, is a type of the empiric

who goes hither and thither collecting facts and applies them at once, untested either by the touchstone of experience or the crucible of reason. The spider who spins her whole web out of herself represents the theorising doctors, the pure dialecticians of science. The bee does better than either, for she gathers the crude honey from the flowers, introduces it into her own organism, and there brings it to all the perfection of which it is capable. But if you look for physicians who act like her you will find none." Discoursing on "The Preposterous Reading of Books" he observes, "From what has been said it is an obvious inference that those physicians who are noted for great learning and an eternal dwelling on books are seldom successful practitioners; nay, they can never judge justly of practice until they make it their only business and continue in it for some time."

Baglivi's account of his master's illness is as follows:

THE HISTORY OF THE ILLNESS AND OF THE
POST-MORTEM EXAMINATION OF MAR-
CELLUS MALPIGHI, PHYSICIAN
TO THE POPE¹

Having been for some time on familiar terms with my master Malpighi at Bologna, and having been called later on to attend him during his fatal illness at Rome, I shall, I trust, oblige the learned world by setting down briefly an account of his illness and of my post-mortem examination of this so excellent anatomist.

Marcellus Malpighi, aged about sixty-six years, was endowed with a constitution tending to dryness, an indifferent habit of body and a middling stature. For many years he had been subject to vomitings together with bilious stools; after the cessation of these to acrid vomitings, palpitations of the heart, stones in the kidneys and bladder, bloody urine, and occasionally slight attacks of the gout. Subsequent to his coming to Rome all of these disorders were

intensified, but more especially the palpitation of the heart, the kidney-stones and certain peculiarly stinging night sweats. On July 25, 1694, about mid-day, Malpighi, presenting some premonitory mental disturbance, was struck down by an apoplexy affecting the whole right side of his body, with distortion of his mouth and of his right eye. Immediately we tried several remedies, among them bleeding from his left arm, (my own method would have been to bleed from the paralytic arm, since the obstructed circulation of the fluids in the affected part is restored in no way more quickly than by opening a vessel in the same, as one may clearly prove by the mechanical principles of resistance and motion: this however was not done because of the opposing opinions of the consulting physicians) and in addition we ordered scarifying cupping glasses to be applied to his shoulder blades, the powder of Cornachini, mustard plasters to the soles of his feet and many spirituous, cephalic and other remedies specifically useful in apoplexies. After struggling for forty days with the gravest of perils, to wit, irrational talking, fullness in the head and other symptoms he was freed, by the use of the aforesaid remedies, from his apoplexy and paralysis. But as evils ever tend to multiply themselves, so this illustrious man suffered much from the foregoing disease with respect of his memory and his powers of reasoning; nay more, on the slightest provocation he was dissolved in tears. At intervals he was troubled also with loss of appetite, gastric indigestion, twitching of the muscles and slight attacks of giddiness. Grievously worn out at length by these and other symptoms, he was seized on November 29, 1694 with another apoplexy which followed close upon his customary morning clyster. This new apoplexy was ushered in by very severe vertigo and an exacerbation of the symptoms of bladder stone which lasted almost continuously for eight days. At the same time, all of his other symptoms as described above were intensified: but most serious of all in gravity was the new apoplexy, for in spite of all remedies, he died four hours after its occurrence.

THE DISSECTION OF THE BODY

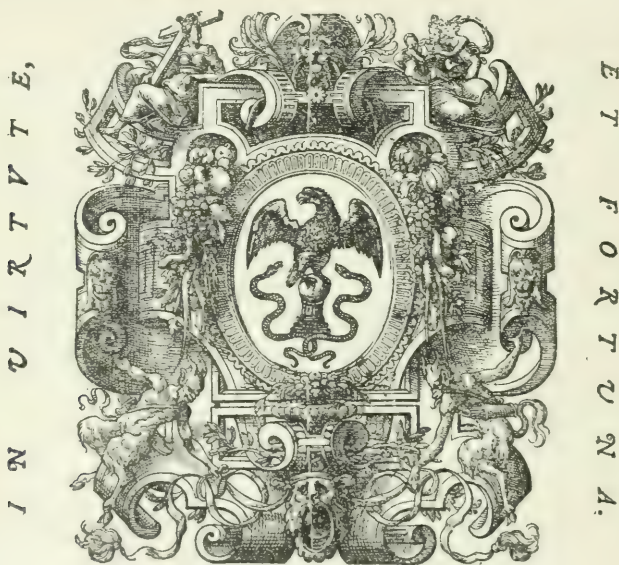
Upon opening the body I observed that the left lung was somewhat flabby and livid,

¹Baglivi. Opera Omnia. Editio Septima. Sumptibus Anisson et Joannis Posuel. Lugduni, MDCCX, 681.

especially its posterior part where it was adherent. The heart was generally enlarged, but more particularly so the wall of the left ventricle which equalled two fingers in thickness. The gall-bladder contained very thick bile. The left kidney was normal, but the right was larger than the left by half and its pelvis so dilated as easily to admit two fingers. Perhaps it so happened that because of this dilatation of its pelvis, the stones formed in the kidney passed presently into the bladder and were expelled thence, a thing which my good friend many times told me had happened during his lifetime. In the urinary bladder was a small stone which by its descent four days before his final

apoplexy, had aggravated his last attacks of vertigo. The rest of the viscera were quite normal.

When I opened his head I found in the cavity of the right cerebral ventricle about two ounces of black clotted blood which was the cause of his apoplexy and his death. In the left cerebral ventricle was about an ounce and a half of yellowish fluid intermixed with a small quantity of little grains of sand. The blood-vessels of the brain were everywhere dilated (*undequaque varicosa*). The whole dura mater was firmly and abnormally adherent to the skull. And these are the things that I observed when dissecting his body on the Kalends of December, 1694.



Apud Guilielmum Rouillium, sub scuto Veneto M. D. LXXXVI.

A CHRISTIAN SCIENCE CURE IN THE SIXTEENTH CENTURY¹ INTRODUCING THE READER INTO VERY HIGH SOCIETY

By HORACE MANCHESTER BROWN, M.D.

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Scilicet.—Two popes, one cardinal, one prefect of the Carmelites, a commissioner of the Holy Office of the Inquisition, a number of damsels who were uncertain as to what they needed, an African woman familiar with devils, a youth, a widow, seventeen devils four by name, an earthen crock, a credulous philosopher with a remarkable sense of hearing, and certain "lewd fellows of the baser sort."

IN cases of disease, the doctor ought, in looking for a cause for the trouble, to consider even the most obscure; not only those that are within the body, and that are natural, but also to fear and look about for those which are beyond the method and art of medicine, especially when the natural remedies are found to be of no use; and when he must consider the disease which does not yield to his care and treatment, and to the cause of which none of his examinations leads him, to originate from bad Devils; God permitting these things to occur.

Of this kind of disease was that of a certain youth in Rome, named Caesar, who, when Johan Pietro Carraffa, being Cardinal and about to be raised to the office of the high pontificate (he was made Pope in 1555, under the name of Paul IV), desired to have certain housings made, this young man brought many to him, of which number the Cardinal chose one.

But scarcely had a day gone by thereafter, when Caesar fell into a great and sudden illness with fevers, which resisted the efforts of many physicians and grew worse from day to day, with loss of strength, marasmus, and was wasted with other evils, although his strength remained sufficient so that he could still get out of bed and walk about the city.

While his condition was thus, upon a certain day at the evening meal, he fell into a sort of fury, with much clamor, and

began to call out that he saw the city of Rome surrounded by horse and foot soldiers, he heard drums and trumpets and all the tumult of war. Which things being denied by his mother, a widow, and the rest of the family, and the condition assigned by them to his disease, he was not in the least persuaded from his belief, and when after a few months, war was set in motion in the lands about Rome, they were sure that he was obsessed by a demon, when he predicted this war.

There was then in Rome an old African woman, living on the hither side of Tiber, who was skilled in the arts of magic, and who could call demons to her, and who was said to be able to cure incurable diseases. To her then they went, begging that she would examine as to what kind of a Devil it was that infested Caesar; who when she had whispered in his ear and made many signs in the palms of his hands, replied, "He is oppressed by a Devil, which is seeking to come out of him, that he may be cured. In order that this may be done within the law, it will be best that he be taken before the authorities, that he may be freed of possession according to the recognized legal methods." They went quickly to the judges at the Capitol, who, contrary to what was to be expected, after hearing the story of the case, and after arguing the matter out with others, decided that the woman should be put to the "Question" in the hands of those who had charge of

¹A translation from Hieronymus de Rubei, of Ravenna, in "Annotationes ad Cornelium Celsum, Proæmium." Lib. I, fol. 17 et seq.

matters of ecclesiastical inquisition. Thus the mother and son were turned over to the commissioner of that office, Michael Ghislerius, doctor of theology of the Dominican order, who then being Cardinal was shortly afterward made pope and took the name of Pius v. Before him the mother laid the case of the disease of her son, and its desperate nature, and told what had been done by the old woman and what she thought was the cause of it, and how she had had much experience; begging, demanding and beseeching with many tears and lamentations that some remedy be given to him.

Michael refused altogether to give any remedy for the conditions and ruled that if the story were true, then the old woman was surely guilty of sin. Then he ordered her to be thrown into prison; only—as it was not possible to prove by all the witnesses all the things she was said to have done—on account of her evil reputation, as shown by all that knew her, he afterward sent her into exile. But to the most miserably afflicted mother and son, he said: “I will send to you a man who is a friend of mine, who is a wise and good man, who will examine into the nature of this disease, and who will do all that may be done for you.” Then he wrote a letter to Joan Baptist Rubeus a relative of mine (who at that time was prefect general of the Order of Carmelites) in which he begged, by order of the Supreme Pontiff, Paul iv, that if he were versed in matters of this kind and their cure, he should come to Rome, and try to find some remedy for the young man.

The mother brought the letter to Rubeus and he promised her that he would use all his knowledge most diligently for the cure of the patient, but yet he would not promise any cure, but would do all that he could according to the order of the Pope.

But it was about this time that all the young girls in a certain orphan asylum in Rome, upon a certain night, were attacked with all sorts of foolish runnings about, with

screams, and using most indecent words, were taken with a species of fury, but the things alas, did not stay in this condition, for this madness became greater daily, although it is true that not every one of the girls was in this condition of madness. Many thought them to be possessed of devils; others ascribed this madness to furor uterina (hysteria), and wished to find husbands for them. Among so many and so diverse opinions, it pleased the Pope, who at that time was Paul iv, that an investigation be made as to whether they were overcome by any sort of demons.

Accordingly he selected for the investigation of these things, several priests among those who were the most distinguished and prominent, and among these as chief, chose the Parisian, Joan Bellaius, a cardinal, most particularly and thoroughly educated in regard to all this sort of thing, and also Joan Baptist Rubeus, one of my family, who with sacred ceremonies, adjurations, and execrations drove out this evil. Now while Rubeus was engaged in all these things, came the mother of Caesar to him with the letter of Michael Ghislerius. Although he was greatly occupied with these matters, Rubeus asked Caesar whether at any time he had seen or heard anything among the beds, or chairs, or clothing, or markings upon the doors which might be considered as placed there by witches or sorcerers, to bring about this kind of fascination by a devil. Thus Caesar came often to Rubeus and the latter read to him many times things out of the sacred books, those things particularly which had to do with the first fall of Lucifer; afterward he read to him the case of Ezekiel, at the same time frequently he laid upon him the crucifix in many places, upon his arms, especially, and also upon Caesar's head.

One day after the reading of these stories: to a question of mine, I being present, as to why he thus laid the cross upon the boy, he replied that he felt one of the ears to be

very cold, and from it into the head and the arms and into other parts of the body this coldness, or a similar feeling, seemed to pass, and hence he suspected the devils to be there, and therefore, applied the crucifix to those places. And moreover, when Rubeus placed the holy Eucharist, enclosed in a little box, upon Caesar, in the region of his belly, I, myself, heard inside of the belly of Caesar, most strange noises, exactly like drums of war, and this not once, but often.

At length after many days these things continuing, it happened that the little sister of Caesar, while playing with others in the vestibule of their house with some bricks which had fallen away from the gate, ran against the side of the gate, which was badly put together, and it fell open and showed a small crock which was covered over with dust, which when it was brought to the mother, she not knowing but that it might have something to do with magic, took it to Rubeus at once, a little before the setting of the sun; but as she could not find Rubeus at this hour, she sent word to him that the morning after she would return, at which time she brought it back to him and Cardinal Bellaius and the rest, while they were still engaged with the affair of the orphan asylum, when publicly and accurately all of these people saw all of these things, and all could concur in what was the fact in regard to them.

The crock being brought to Rubeus, it was examined and certain coarse and worn marks and characters were seen marked upon and about it; and within it, first was found certain masses of curls or rings of most beautiful hair in which many knots had been tied. There followed then two broad scales which seemed to be from the hoofs of a mule, besides this the feathers of a hen made into the form of a triangle, then two hearts formed of wax and pierced with pins. Chips from the finger nails, snail shells, and a number of chick-peas, and other certain seeds. In the bottom some

rolled up paper which when it was straightened out, on the first page was seen a rude picture painted in the likeness of a man's hand transfixed with two arrows crossed after the manner of the Greek letter "κ," then included in this, a smaller page upon which were written thirteen unknown names which were thought to be the names of devils, but which I cannot remember, although I recall that upon another page of the same, there were four of these which I am able to remember and these were Rodomas, Inglegomas, Redor, Abulviars. Within this sheet was also included another in which was written that if Caesar walked over this crock he would remain for ten years in the greatest possible trouble; or if it were written in Italian, it would be—"Caesar come qui sopra passerai, per dieci anni in gran pena starai."

There were also other added words which, owing to the worn condition of the sheet, could not be read. When these things were seen every one of those present was astonished and spoke with many opinions as to what these things might all mean, and what should be done.

Bellaius said: "Let us hasten in carrying out the business which the holy pontiff has ordered us to do, and look into this matter afterward," and then all these things were put back into the crock and it in its turn put into a vase full of Holy Water and the crock put aside. Wonderful to say, within the passage of ten days, Caesar who already during two years had been weak and in a desperate condition, stupid and of a most evil mind, returned to his original state of health.

I have desired that these things should be written that it may be understood that diseases can arise from other hidden causes than those which pertain to natural motion, and because this can be also found in other books, for others have thought the same thing since Hippocrates said this was true, that "there was something divine in diseases which physicians ought to foresee."

A BRIEF HISTORICAL SUMMARY OF THE TREATMENT OF
TRACHOMA, WITH SPECIAL REFERENCE TO THE
ARABIAN SCHOOL AND THE WRITING OF
ALI IBN-EL-AÏSSA (JESU HALI)¹

By CHARLES GREENE CUMSTON, M.D.²

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THE origin of trachoma is very ancient, "as old as the Nile, the Simoûn, the Desert" . . .

The early Egyptians do not appear to have given any special pathologic attribute to granular conjunctivitis, but they treated certain ophthalmias with the salts of copper—acetate, sulphate, carbonate, malachite—as well as with ferrum oxide.

In Aristophanes's comedy "The Frogs," mention is made of a form of ophthalmia that was artificially induced by those who desired to escape service in the marine; while in "The Retreat of the Ten Thousand," Xenophon refers to an ocular morbid process of a contagious nature which caused much suffering among the soldiers during their retreat. These are merely literary considerations which have no real practical bearing on the subject of this paper.

It is, I believe, very probable that ocular granulations were far more prevalent among the ancient Greeks than is generally suspected and what seems to prove it is the great care that the celebrated practitioners of the epoch gave to the description of trachoma in their writings, as well as the complicated therapeutic measures that they resorted to for the treatment of this affection.

Let me first refer to what is said of trachoma in the "Hippocratic Collection." Inflammation of the lids is spoken of and a kind of thin paste composed of acetate of copper and juice of unripe grapes is recommended as a local application. Another application was composed of ashes of copper reduced

to powder mixed with fat and then moistened with unripe grape juice, dried in the sun, and afterwards again moistened until the consistency of an ointment was reached.

The necessity of everting the lid was recognized and then of rubbing the internal aspect, and the writer continues: "When thou rubbest the eye-lids, rub them with clean thick wool wound round a wooden stick," and again:

Avoid touching the edge of the eye (lid) and do not scrape down to the cartilage: thou wilt know when thou hast rubbed enough from the fact that clear blood no longer flows but (in its place) a sanguinolent or watery fluid (escapes). Then rub with one of the ocular liquid medications, such as flower of copper, after friction and scraping, when the crusts have fallen, when the ulcers are clean and granulate, an incision is made in the direction of the apex of the skull .

If the lids are exceeding thick cut underneath the fleshy excrescence as well as thou canst and make in it punctures with a hot iron which should not be red, care being taken not to involve the implantation of the lashes; or produce [obtain] contraction with pulverulent flower of copper [powdery oxide of copper]. When the crusts have fallen continue the treatment according to general principles.

Celsus and his contemporary Scribonius Largus advised energetic massage of the granulations with a copper ointment having the consistency of honey, while Dioscorides says that "friction with rough fig leaves or with a little scalpel or with a sharpened bone of the cuttle-fish or with a pencil of acetate

¹ Read before the Royal Society of Medicine, London, May 18, 1921.

² Lecturer on the history of medicine at the University of Geneva, Switzerland.

of copper" should be carried out. Hirschberg states that the use of fig leaves is to-day a popular remedy in the Orient.

Felix Cassius recommends friction with cuttle-fish bone or with pumice stone, while Galen extols turning up the lids and thorough scraping without medicaments:

Some merely scrape superficially with a sharp instrument and control the resulting secretions with a soft sponge. As long as the internal surface of the lids remains rough, use astringents . . . Some also employ, in a fashion perfectly in keeping with this end, the rough skins of certain marine animals. One of my masters used a pumice-stone pencil to rub the internal surface of the upturned lids. It is clear that one should employ pumice stone that has first been reduced to very fine powder and afterwards forming it into a pencil by mixing it with tragacantha or ordinary gum. . . . If the flux slowly subsides by the use of the pencil we may essay rubbing the lids with astringent medicaments but these are to be employed with caution and later on, when it is found that the patient easily supports them [the applications] recourse should be had to more concentrated [stronger] medicaments.

Ætius says: "Some dare to scrape the granulations with a metallic instrument, others with fig leaves. The enterprise is hazardous" He then advises massage with astringent ointments.

Paulus Ægineta also everted the lids and scraped the surface either with pumice stone, cuttle-fish bone, fig leaves or with a special instrument in the form of a minute sickle with denticulated edges. Paulus likewise gives the most interesting description of trachoma to be found among the ancient writers, under the heading: "Roughness of the Eyelids and Granulations." He says:

Trachoma is an affection of the internal surface of the lid; when it assumes a great intensity, when it presents notches, it is called the disease of the fig [suôsis], and when it has become chronic and cicatricial it is called callosities [tulôsis]. It is necessary to employ local medication: one, a wine, another with the "the two

stones" (sublimated ferrum oxide); rub gently with this medicament the internal surface of the lid. The *barmation*,³ with a litterswan's ointment or saffron ointment applied to the upturned lid, is likewise excellent in inflammation of the palpebral edge when not complicated with ulcers. But if the callosity is too hard, it will not give way to these remedies; therefore, turn back the lid and rub with pumice stone, cuttle-fish bone, fig leaves or with a special instrument called *blepharosustos*.

Anagnostakes applied the procedures of the School of Cos, but he was of the opinion that they were intended as a preparatory treatment for the application of the caustic, and bases his opinion on the following passage from Galen:

We begin by rendering the fig-leaflike granulations rougher and afterwards apply the caustic remedies. We thus operate in order that the strength of the remedy may act upon the callous excrescences. You know that for this affection I employ the rough skin of the shark, cuttle-fish bone and pumice stone, and in some cases the spoon of the sound with a pointed end.

Let me here make a short digression. Galen compares granulations of the conjunctiva to fig seeds. This comparison is most apt. When a ripe fig is split open the small yellow seeds scattered through its dark red pulp recall the aspect of an inflamed palpebral trachomatous conjunctivitis.

Benevenutus Grapheus, who lived in the thirteenth century, perhaps coming from the Orient, practiced ophthalmology in the South of Italy and very probably also at Montpellier. He states that the Saracen women rubbed the internal surface of the conjunctivæ with fig leaves until bleeding occurred, but that the result of this treatment was not lasting.

Such are the principal data relating to the history of trachoma among the ancients.

³This *harmation* contained four drugs in equal parts, namely, copper, frankincense, resin of ammon and gum.

They possessed a long series of very complicated formulæ into which a large number of products and compound medicaments entered. I would add that when these complex remedies were not at hand they employed goat's bile and very fine honey as an application. With the exception of these complex formulæ, we still continue to use the salts of copper as did the ancient physicians, while our modern instruments for the treatment of trachomatous granulations bear the stamp of Galen's *kuatsiskos* [sharp spoon] and the small knife used by Celsus.

Ophthalmology was practiced among the Greeks by general practitioners and also by the priests, and none appear to have been specialists. Contrary to the practice of ophthalmology among the Greeks, there were among the Arabs physicians who, besides a general medical education, acquired by special studies a fundamental basis for various specialties. Their works, which have come down to us, show that all physicians did some ophthalmology, but that among them there were some who limited their practice exclusively to diseases of the eye.

The oculist was called *al khal*, from *khol* [powder] for the eyes or collyrium. Many of these specialists like Ali Ibn-el-Aïssa, Omar, Sadid Eddin-bel-Rakika, Halija, Salah Ed Dinn, not to mention others, had acquired an experience in ophthalmic practice not to be found in the Greek writings. It is of interest to note that there was a well-known female oculist of whom Oussadia says: "Zina, the wife-physician of the Beni-Aoud, was familiar with operations, dextrous in the treatment of diseases of the eye and wounds, and for these reasons was admired among the Arabs." The precise epoch at which she lived is not clear, but it certainly was before the advent of the Prophet.

Charlatans were with the Arabs as they are with us at present, and Omar relates:

I saw at the house (of a friend) many oculists who came from hospitals and other places; there were among them some who knew neither how to write nor read; among them also was a practitioner who said: "Here is a remedy that I have from my father who received it in a dream." And when I propounded questions on the science of ophthalmology, more than one understood not the question and could not answer on account of their lack of scientific study. They knew not the specific remedies and had no experience with the human eye.

Patients requiring a repellent medicine were given discutient remedies and inversely. They were continually mistaken, but from *amour propre* and personal admiration, they considered it superfluous to seek (the advice of) a man of science.

For the Arabs, the classic book on ophthalmology was the "Tadkirat-el-Kahhalin," written at Bagdad in the eleventh century, by Ali Ibn-el-Aïssa. It is the oldest book on diseases of the eye that has been integrally preserved in its original language. Now, since the ophthalmology of the Arabs originates from that of the Greeks and as Ali Ibn-el-Aïssa utilized many important sources which to-day are irretrievably lost, because the author of this book expressly states that he has himself studied the writings of the ancients—that is to say, the Greeks—it may be rightly supposed that in its pages we possess a summary of what was known of ophthalmology by the Greeks and Arabs down to medieval times. The book is the systematic work of an experienced oculist, absolutely homogenous and completely preserved, while after the loss of the Greek treatises on ophthalmology, the passages summarized in Oreibasios, Aëssius and Paulus Ægineta relative to diseases of the eye present very important lacunæ.

But although this work is based upon Greek pathology and therapeutics like all other medical treatises of the Arabs, it contains much that is original as well as acquired from the teachings of the masters

in the time of Ibn-el-Aïssa, and which the author personally tried in the exercise of his profession. Therefore, we may expect from him teachings which should be much in advance of the knowledge of the Greeks.

The book is written with order and in a perfectly clear style that advantageously contrasts with the rather slovenly arrangement of subjects found in Aësius and Paulus Ægineta, and I would add that in this respect the medieval medical works of the Arabs offer an unquestionable superiority over their predecessors. Ibn-el-Aïssa devotes a chapter to describing in great detail the more frequent and important diseases, such as conjunctivitis, trachoma and cataract, passing rapidly over less important matters; chapter follows chapter in perfect order, quite in conformity with the anatomical knowledge of the epoch, and in each, the author first gives the definition of the morbid process considered, next the objective symptoms, then the etiology and lastly, the treatment, comprising general therapeutic measures and diet, followed by the local treatment of the lesion. From the viewpoint of literary style Ibn-el-Aïssa may even today be looked upon as a model.

It has been the privilege of few to have seen the Arabian MS. of Ibn-el-Aïssa's work, but for some four hundred years there has been in existence a Latin version, entitled: "Tractatus de Oculis Jesu Hali," published at Venice in 1497, 1499 and 1500 (Choulant). Both Neuburger and Hirschberg are high in their praise of the work. Friend was, I believe, the first European writer to mention Ibn-el-Aïssa, but says that he found nothing worthy of note in the book. Ackermann (1792) and Sprengel (1800) do not even mention him. Halser (1875) gives only the title of the book, while Hirsch (1877) states that it is pure compilation, and this is likewise the opinion of Schrutz. Such slighting remarks are merely due to the fact that these men have

only seen the Latin version which is unintelligible. However, in 1845, Hille published a new Latin version, but only of the first book, while in 1903, Pansier published a translation using for this purpose the Latin MSS. of the Bibliothèque Nationale of Paris. In the same year, Arif Arslan published a French version of the first book and in 1916, Dr. Mohammed Haddou, of Oran, Algeria, translated the sixth chapter of the second book into French and to him I am indebted for what is to follow.

Ali Ibn-el-Aïssa, surnamed El-Kahal, meaning the oculist, was a Christian and lived at about the first half of the eleventh century at Bagdad. His treatise "Tadkirat el Kahhalin" had such astounding success that physicians studied it only, leaving aside all other works on ophthalmology. The great celebrity acquired by this book can be explained from the fact that in medieval times one Hebrew and two Latin translations were made. This celebrity is also made manifest by the large number of manuscript copies of the Arabian text which have been preserved and are to be found in the libraries of Florence, Paris, Cairo, Beirut, the Vatican, Dresden and Gotha, and elsewhere.

Dr. Haddou states that in perusing the book one becomes impressed that the author was a careful physician, especially prudent in operating and also very humane. The fourth chapter of the second book of the "Tadkirat" deals with trachoma and I will give an English version from the French of Dr. Haddou. I would add that "Tadkirat el Kahhalin" means—a memento for oculists.

BOOK II—CHAPTER IV

The varieties of trachoma (djarb el ainnine)¹ are four in number. The first is a kind of redness appearing on the internal surface of the lid.

¹Djarb el ainnine signifies *scabies of the eyes*. In the writings of Benevenutus Grapheus (thirteenth century) it is stated: "et arabi et saraceni vocant infirmitatem istam nimasum id est scabies in oculis."

The symptoms are as follows: If the lid be turned upward, one will perceive dots similar to those of measles (on the skin). This kind (of trachoma) causes less pain and is less serious than the three others. However, it is also accompanied by a flux of tears which, in most cases, is the consequence of an acute inflammation of the eye. In reality, saline secretions represent the cause of all types of trachoma; the latter are also the result of a prolonged exposure to the sun, dust or smoke; they are likewise due to bad treatment of inflammation of the eyes.

To treat trachoma the body must be purified and blood let from the cephalic when this seems possible.

If afterwards it is necessary to take a purge, resort to dried violets with sugar or *mirobalanus citrina* with sugar, according to the strength of the patient and his age. Afterwards, turn up the lid and rub it with the strong red collyrium.

This collyrium is yet useful in trachoma, pterygion and hypopion and inflammation of the border of the lid. The receipt is the following:

Take of:

Washed blood-iron stone (ferric oxide)	6 drachmes
Gum acacia.....	5 drachmes
Burned copper.....	2 drachmes
Burned colcothar (red oxide of iron)...	2 drachmes
Opium of Egypt.....	$\frac{1}{2}$ drachm
Aloes of Socotora.....	$\frac{1}{2}$ drachm
Green wood.....	2 drachmes
Saffron.....	$2\frac{1}{2}$ scruples
Myrrh.....	$2\frac{1}{2}$ scruples

The number of ingredients is nine. They are mixed, crushed, passed through a sieve and kneaded with old cooked wine or if this is not handy, with cooked fennel water; a collyrium is thus obtained and applied.

If its application is successful, so much the better. If not, resort should be had to the green collyrium, the lids being annointed with it. However, this kind of trachoma should never be rubbed with sugar because the final outcome would be nefarious. If the eye presents the sequelae of ophthalmia, turn up the lid and rub it with the mild red collyrium.

Receipt for the mild red collyrium which is useful at the final phase of ophthalmia and for slight trachoma, for inflammation of the lids and ophthalmia due to dampness.

Take of:

Washed blood-iron stone	10 drachmes
Burned (calcinated) copper.....	4 drachmes
Coral.....	4 drachmes
Unpierced pearls.....	4 drachmes
Leaves of cinnamon of India.....	4 drachmes
Gum acacia.....	2 drachmes
Gum tragacanth.....	2 drachmes
Myrrh.....	2 drachmes
Resin of the fruit of <i>Calamus Draco</i> . ⁶	1 drachmes
Saffron.....	1 drachm

The number of ingredients is ten. They are mixed, crushed, passed through a sieve, treated with old wine and a collyrium is made in long strips (bands) in order to distinguish the mild red collyrium from the strong red collyrium.

This mild red collyrium is applied until the inflammation and remains of the ophthalmia have subsided. One then returns to (the use of) the remedies already referred to.

And after that, when thou upturnest the lid, it is to be done with prudence, not allowing the lid to fall back into place itself, but begin by careful rubbing and then replace it (the lid) in its proper position. When the eye has become rested from the action of the remedy, place a little fine powder upon it by means of the sound.

Receipt for the fine powder, useful in trachoma and membranes on the cornea and for inflammation of the eye.

Take of:

Calcinated zinc (tussia) of Kirman in Persia, which has been softened with milk during the space of one night, 10 drachmes.

Calcinated blood-iron stone softened in milk, 10 drachmes.

Crush and apply.

Also advise the patient to regulate his diet.

It has also been affirmed that if one turns up the lid, and if one besprinkles with the powder of pulverized oak galls, if after this the lid is allowed to remain upturned (everted) for three hours time, or yet if, during the time it is everted, a fillet (band) is applied, the trachoma is radically cured and afterwards the lid will no longer take matter, so efficacious is the procedure.

⁶A palmiferous tree. The active principles of the resin are draconin and benzoic acid. It is astringent and hemostatic.

Others pretend that if one operates with cloves, a salutary result is obtained.

II

The second kind of trachoma offers more gravity than the first. It behaves with pain and gravity. Both these kinds (of trachoma) render the eye moist and lachrymose.

To treat the second kind, it is necessary to begin by emptying the body. Afterwards, turn up the lid and rub it with active preparations and place blood-iron stone in the eye by means of the sound. When the heat has subsided pass to the use of the mild red collyrium and the powder of pearls. Then to the strong red collyrium.

If the trachoma is complicated by ophthalmia, care for the ophthalmia in the first place with the treatment best suited for it, although not neglecting the trachoma itself lest it should increase. But as soon as the ophthalmia is in repose, return to the treatment properly belonging to trachoma. If the trachoma is accompanied by ulcers and mordants (?) apply calming drugs that I shall yet mention in the chapter on ulcers. The best is to first treat the ophthalmia and ulcers and after their cure return to the trachoma.

Should the roughness of the lid be injurious to the eye the lid must be everted, held fixed (in this position) and rubbed with the sound until the mordant (?) (inflammation?) has been calmed.

I knew an experienced physician who, in the case of exacerbated trachoma, everted the lid and rubbed it with the stone of blood iron. By my life! the stone of blood iron is active for roughness of the lids. But beware of fecula⁶ and antimony, because both produce trachoma of the lids, the white powder quite as well as the white collyrium.

The best treatment of trachoma consists in everting the lid, to rub it with medicaments and then await the subsidence of the inflammation resulting from the action of the medicament; then, for the second time evert the lid and rub it. And afterwards, when the inflammation due to the application of the medicament has again subsided, place in the eye three sounds full

⁶Perhaps the meaning here is tartar=fecula, diminutive of faex=dregs.

of pulverized powder in order to fortify the body of the eye.

And if thou turnest the lid upward, and if thou hast rubbed it with the spoon of the sound, if thou hast lastly applied the strong medicament, and afterwards the green collyrium, this is yet better and more useful.

Description of the green collyrium useful for the skin of the cornea, trachoma and white spots.

Take of:

Light green wood shavings.....	2 drachms
Silver colored calamine ⁷	2 drachms
Resin of Ammon.....	2 drachms
Gum acacia.....	2 drachms
White of lead.....	2 drachms

Crush, pass through a sieve, moisten with rue [ruta] water and prepare a collyrium.

The number of ingredients is five.

III

The third kind (of trachoma) is the most severe and most serious. The roughness of the lid is still greater. Here is the sign: Thou seest on the internal surface of the lid an appearance like that of a fig that has burst open; it is because of this that it is also called fig-like trachoma.

Treatment. The body must first be purged by medicine and blood let from the cephalic. Next the head is purified by bleeding at the angle of the eyes or on the forehead. After this, still further resort, for purifying the head, to the following measure, excellent for trachoma, eczema, ectropion, sinuses of the eye and nasal polypi.

Aloes of Socotora.....	½ drachm
Castoreum.....	½ drachm
Milk of myrobalanus.....	½ drachm
Persian maïran.....	1 drachm
Juice of lysium.....	1 drachm
Saffron.....	1 drachm
White sugar.....	1 drachm
Lentils.....	1 drachm
Myrrh.....	1 drachm
Sarcocolla.....	1 drachm
Saponaria.....	5 drachms

⁷I hardly think that the silver colored calamine referred to can be the calcinated or calamina prae-parata which is used as a dusting-powder, because it is distinctly pinkish in color. It is more probable that it was siliceous calamine, a native hydrous zinc silicate, Zn_2SiO_4 .

The total number of ingredients is eleven. They are crushed, passed through a sieve, moistened with maïran water and prepared into pills like (the size of) pepper seeds. But only exhibit them after having bled and after having purified the body by a purge and proper diet. It is only then that it is proper to resort to treatment. Even in other kinds of trachoma it is well to apply this manner of preparation. If thou doest not so, thou wilt bring acute matter to the eye. The nefarious effect, then, produced by treatment is greater than its useful effect. Then the lid is everted and rubbed with the royal ointment and green collyrium. If their action becomes clearly manifest it is well, if not, one must rub with sugar or meerschäum or with the scalpel, and this very carefully, until the lid, as far as its thickness is concerned, has recovered its normal state; after this, instill cumin water and salt into the eye and dress the eye with the yolk of an egg and oil of rose that it may be better protected against the attraction of matter (from without). The second or the third day, after friction, apply a soundful of washed blood-iron stone in order to prevent irritation of the eye. But if in spite of this the eye becomes irritated do not apply anything else than blood-iron stone.

If nevertheless it becomes necessary to employ a powder, besprinkle the eye with powder reduced to dust and yellow powder. Here is the receipt for the latter:

Sarcocolla.....	2 drachms
Collyrium of swallow-wort.....	1 drachm

Rub well together and apply.

If the inflammation has given way, the lid should be everted and rubbed with the mild red collyrium, the green collyrium and royal ointment until the lid has been cleansed. The diet must be maintained.

Receipt of the royal ointment useful in trachoma, pannus, pterygion, amaurosis and lachrymation.

Take of:

Black pepper.....	5 drachms
Long pepper.....	5 drachms
China ginger.....	5 drachms
Yellow and black myrobalanus with the pips removed.....	5 drachms
Aloes of Socotora.....	1½ drachms

Meerschäum.....	6 drachms
Cinnabar.....	5 drachms
Cinnamon bark.....	4 drachms
Black currants.....	4 drachms
Cloves.....	4 drachms
Rock salt.....	1 drachm

The total number of ingredients is eleven. They are crushed, passed through a sieve, well triturated and applied.

IV

The fourth kind of trachoma is still more serious than the first three, is harder (to cure) and more dangerous and of longer duration; it gives rise to pain and great induration. On account of its thickness it cannot be made to disappear rapidly when once it has become rooted. Occasionally it gives rise to an exuberant growth of lashes. Here is the sign: if thou turnest up the lid, thou wilt perceive that it is dark, cloudy and covered by cicatrices.

Treatment. In the first place thou shouldst empty the body and purify the head with gargles with the sacred bitter remedy, or else the patient may take aloe pills on days with intervals between. Besides, thou shouldst apply medicaments for purifying the head, such as have been above referred to, and order a light diet. Thereupon, evert the lid and rub it with the instrument called the rose^a or with the scalpel, and this thoroughly.

If at the end of the friction it appears still necessary to rub with white sugar, do so and finish by the treatment above mentioned for the third kind (of trachoma). In all kinds of trachoma thou shouldst always prescribe *the bath* which promotes resolution of the moisture after purification of the body.

Briefly, if the trachoma has become chronic and inveterate nothing is of avail excepting friction with sugar and iron.

If it be still slight and at its onset, it will be cured by mordant applications. After one application of these mordant medicaments, the trachoma is treated by the cinderlike powder, in order to fortify the skins (membranes) of the eye itself.

It would be merely a repetition of what

^a A metallic heart-shaped leaf, cutting on both its edges.

has been said were I to give extracts from the writings of other Arabian oculists. However, perhaps I may be allowed to quote a passage from Omar ben Ali el Mossili, a contemporary of Ibn-el-Aïssa.

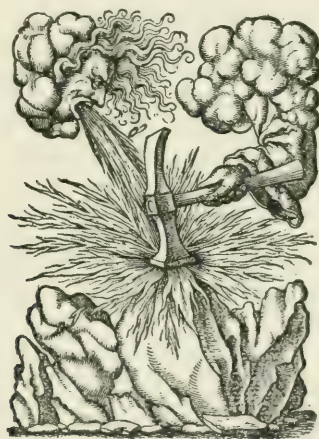
Omar finishes his explanation of trachoma with these words: "Do not lose patience with the treatment, because this affection only ends after the lapse of a long time . . . Do not give up treatment because it is by persistence in it that a cure is to be found."

For the fourth type of this morbid process, Omar advises the use of an ointment of acetate of lead, and of the operative treatment of the third type of the disease he says: "To treat the third kind, evert the lid, keep it turned up, and scrape it with

the scalpel until the lid is cleansed and no granulations remain. Then besprinkle with saffron powder and apply a bandage for one day.

I would also add that Halifa ben Ali Mahasin, who practised at Aleppo wrote his "Kitab al Kafi fil kuhl" in which he depicts ophthalmologic instruments, among them being the rose (ouardi) and semi-roseshaped scarifiers.

Such are the data that the perusal of the Arabian writings give us on the subject of trachoma. It has often been said that the therapeutics of the Arabs was purely empirical and as such, does not merit our attention as medical historians, but, in truth, is it not to empiricism that the science of therapeutics must appeal as a last resort? *Dixi.*



JOHN SHAW—A MEDICAL POET OF MARYLAND

By JOHN RUHRÄH, M.D.

BALTIMORE, MD.

FROM the days when Nicias, a student of medicine at Cos, poured out his heart in verse to his lady love, and Nicander, priest of Apollo and physician, sang of poisons and venomous serpents, to the present troublous times, devotees of Erato and Euterpe have been recruited from the ranks of the followers of Æsculapius. Some have been true lyric poets, whilst others have sought to teach while they sang and from the latter have come a number of *Lebrgedichte*, such as the *Regimen Sanitatis Salerni*, *La Balia* (the Nurse), of Tansillo, the *Callipædia* or the way to have Beautiful Children, of Claude Quillet, *Pædotrophia*, or the Art of Bringing up Children, of Sainte Marthe, and *Syphilis* of Fracastorius. Some, like Garth in the Dispensary, have satirized the times and not a few medical men have translated the classic poets. There are physicians who have been better poets than practitioners, as Keats, Goldsmith and Schiller, and there have been others whose poems are obscured by the brilliance of their medical work, as William Harvey, whose discovery of the circulation is known to the veriest tyro in medicine, while his poems are familiar to but few of the *literati* of the profession, and Haller, no mean versifier is better remembered as a physiologist, anatomist and botanist than as a poet. Even hard-headed, common sense surgeons have wandered into the fields of fantasy and *Träumerein an französischen Kaminen* published under the pen name of Richard Leander, but in reality by Von Volkmann is by no means the least of the German classics. William Henry Drummond, the Irishman, transplanted in Canada, brought out a garland of poems which will be remembered long after his achievements as a physician

are forgot, *The Voyageur*; *Phil-o-rum's Canoe*; *Johnnie Courteau* and the *Habitant* have earned for him the title of "the poet laureate of British Canada," while the real poet laureate of England by letters patent is a physician, Robert Bridges. America can point with pardonable pride to a few medical poets, Joseph Rodman Drake, Oliver Wendell Holmes; Weir Mitchell; Samuel Minturn Peck; Charles Stuart Wells; John Allan Wyeth; George M. Gould, Hugo Erichsen; Frank D. Bullard; to mention some of the better known names. Thomas Dunn English is remembered on account of his *Ben Bolt*, *American Ballads*, and *Book of Battle Lyrics*, and to many it is news that he was a physician.¹

John Shaw, of Maryland, ill fated, the victim of the great white plague at thirty, an almost unknown name in the annals of American lyric poets, is almost equally as unknown as a physician though he played a part in the history of medical education in America as a founder of the first medical college of Maryland. After his untimely end, John E. Hall, a brother of Dr. Thomas N. Hall, collected his poems, wrote a biographical sketch of the author and both were published in a small volume in 1810 by Edward Earle, of Philadelphia and Edward Coale, of Baltimore. The work was printed by Fry and Kammerer.

John Shaw, it is stated, "was the son of

¹ It might be added in passing that the first anthology of native American verse to be published, was also arranged and edited by a physician, Dr. Elihu Hubbard Smith, of Litchfield, Connecticut. It is a rare volume of 304 pages, entitled "American Poems, Selected and Original," printed by Collier and Buel at Litchfield in 1793, and containing, among much that is trite or conventional, several pieces by Dr. Lemuel Hopkins of Hartford, notably his well-known "Verses on General Ethan Allen."

a respectable gentleman of Annapolis, born in that city on the fourth of May, 1778." The writer of the memoirs had but little acquaintance with his early life and expresses his indebtedness to Francis Scott Key, Esquire, of George-Town, District of Columbia, for certain information of "those happy years spent in the closest intimacy with a friend who had all his regard and affection."

Thinking accounts of the early days of little value or interest to the world, the writer of the memoirs passes over this period, but states that "Shaw was initiated into the rudiments of the classics by Mr. Higginbotham, a man whose refined taste and profound learning in ancient lore, were daily invigorated by the delight with which he pursued these studies."

When St. John's College was established at Annapolis, Shaw's class was moved to that institution and he was frequently called on as a show pupil of what was regarded as a show class. His biographer doubts whether he acquired anything else than Latin and Greek while at college, but later on, especially while he was in Europe, he became familiar with a number of modern languages and made translations from Italian, Spanish, Portuguese and Arabic poets. He must have been familiar with French and, while in Canada, acquired a knowledge of the language spoken by the Mohawks.

Shaw very early in life began to write poetry. At the age of seventeen he published in the Baltimore Telegraph for May 13, 1795, a poem entitled "The Voice of Freedom," and from that time on till his death indulged his fancy in various poetic forms, including, as noted above, quite a number of translations. Some of the poems were found among his papers after his death and have been reprinted without the polishing which the author would doubtless have given them had he known they would see the light of day.

Shaw received his A.B. degree from St.

John's in October, 1796, on which occasion he delivered the Latin salutatory oration. He was sufficiently fluent in the Latin tongue to compose it in that language in place of first writing it in English and then making the translation, as was the custom of most of the students reading Latin at that time. He was subsequently granted the degree of Master of Arts. Having decided on the study of Medicine he started in with Dr. John Thomas Shaaf, of Annapolis, and during the next two years read widely in the literature of his chosen profession, particularly the earlier writers. Being a good scholar he was able to read Hippocrates in the original tongue.

In the autumn of 1798, he went to Philadelphia to attend lectures at the University of Pennsylvania. Shaw arrived in Philadelphia on the sixteenth of November, pursuing his studies till some time in December, when he learned that a surgeon was wanted for the fleet that was about to sail for Algiers. He made application and was appointed on the twenty-first of the same month. He left Philadelphia on the twenty-third of December and sailed on the Brig *Sophia*, which was accompanied by the brig *Hassan Basbaw*, the schooner *Skjoldbrand*, and the schooner *Lela Eisa*. Shaw was a very entertaining letter writer. He tells graphically how, when he reached the vessel, he found that the medicine chests which had been packed by an apothecary in Philadelphia were filled up with useless articles selected without judgment. Had it not been for the fact that he had brought along a few remedies he would have been wanting in the most essential things. He gives the following account of his going on board:

In order to pass from the pier to the *Sophia*, it was necessary to cross upon the ice, which, from a considerable thaw in the day, was rather a hazardous attempt. Thinking of this and putting the question to myself, "what if I should be drowned?" I began to philosophize upon the

subject, and very wisely concluded that it might be to my advantage, as I should then be freed from all the troubles and vexations of this world. Scarcely had I made this conclusion when I arrived at the pier, and attempting to get upon the ice I found myself over head and ears in the water. My philosophy vanished in an instant; I scrambled out upon the ice as fast as I could; and got on board in a better humour with the world than I had been all day. My speculations were all over-turned by this seasonable cold bathing, and never once occurred to me before the next day.

We were detained at Port Penn by the ice until the 4th of January, 1799, when the squadron set sail and we were out of sight of land next morning."

After the manner of youth, Shaw was given to asking *cui bono*, even of life itself, but much of this mood was of the quality of which another poet once said:

"Go, you may call it madness, folly;
You shall not chase my gloom away;
There's such a charm to melancholy;
I would not, if I could, be gay."

The following is an expression of this:

TÆDIUM VITÆ

What is life but to wake and eat, to eat and to sleep again?—And is this worth living for?

How long shall lazy time around
His dull unvarying circle roll,
Till respite to my care be found,
And peace and quietude of soul?
Till I the promis'd shelter gain
Where worldly cares no more molest,
And where reliev'd from every pain,
The weary-laden are at rest?
Oh, Ruler of my wayward fate!
Thy guardian hand still let me own:
Still teach me humbly to await
Thy fiat as thou wilt it done.
If 'mid the gloom of night I stray,
A refuge from the storm to seek,
Oh frown not on my darkling way,
But guide me wandering, help me weak.
Cold, tasteless, in this spot below
Are all the boasted joys we prize,
Then bid me *feel* the truths I *know*,
Nor value aught beneath the skies.

For if thy favour thou bestow
Each earthly charm is instant flown;
The light soul spurns the world below,
On wild wing fluttering to be gone.

And though mortality's harsh chain
Forbid the pris'ner yet to fly,
Thou, Lord! shalt burst her bonds again,
And bid her seek her native sky.

The trip to Europe was made rather uneventfully and Shaw had an opportunity of visiting a large number of places before his return. His letters describing his impressions make very delightful reading and he made the most of his opportunities. When the squadron returned, Shaw was left behind as secretary of the Consulate, and while the pay amounted to almost nothing, he picked up a certain amount by practicing his profession. He seems to have been widely employed and was made physician to the Bey of Tunis.

Of the Bey, whom he evidently did not envy, he says:

The business of dispensing judgment must be exceedingly laborious to the Bey. Six days in the week he is condemned to sit for five or six hours in the morning, listening to some story of a stray ass or the pilfering of two or three carroubs worth of goods, besides hearing the nonsense of the litigants, each of whom pleads his own case. Not understanding the language, I cannot determine whether they are as ingenious in their arguments as *our lawyers*; but this I can affirm, that they make full as much noise and are equally long winded, which, perhaps, in matters of this kind, answers just as well. The Bey seems as if he wished to shorten their pleadings as much as possible, for while they speak they are obliged to squat upon their hams, and an officer of the court lays his hand upon their head and confines them in that disagreeable position until sentence is given on the case.

One can well imagine that some of the translations from the more modern poets were done about this time. The poems are undated, so that this is mere conjecture.

TRANSLATION OF A PORTUGUESE AIR

The jutting rocks the ocean laves,
And soon or late the rocks decay;
Until with liquid shocks the waves
Sweep every rugged stone away.

Not so those seas of tears I pour,
Ah cruel! while for thee I pine:
Those seas of tears but harden more
That unrelenting heart of thine.

In commenting on ophthalmia in Tunis, Shaw makes, doubtless by accident, a remark that in light of recent developments in our knowledge of nutritional disorders is truly prophetic. The xerophthalmia of infants whose food is deficient in certain factors is one of the most recent of the newcomers in medicine, and here, in the beginning of the last century, we have nearly the same thing clearly expressed. The germ theory evidently did not occur to Shaw. Perhaps it was just as well it did not, as one of Shaw's contemporaries, the brilliant John Crawford, fared badly for having considered it. This man, practically unknown, with a mind of the quality of John Mayow, the neglected genius, lectured in 1811 at the college which Shaw helped to found, on "The Cause, Seat and Cure of Disease." He taught that disease to a large measure was due to parasites, that disease germs would eventually be discovered and that prevention and treatment lay in the destruction of the cause of disease—the germ. He was so bold, so far ahead of his time, that he was looked at askance by his contemporaries and his success greatly impaired. Sixty years or so later his prophecies came true, his opinions were justified.

But to return to our traveler:

The frequency of sore eyes in this country is attributed by some to the reflection of the rays of the sun from the white walls of the houses. But in Algiers, where the houses are all white, you do not find so many blind people as in this place, where most are of a dirty mud color. May it not proceed from some other cause

peculiar to the climate? A goat which we brought with us from America turned blind in two or three days after being put on shore. May it not proceed from excess in vegetable food? Rice is vulgarly said to produce blindness in those who feed upon it, as the negroes in Georgia.

Of another character is the remedy for snake bite, just one more of the marvelous cures that clutter the feeble imagination of man and help to impede real progress.

We next went to see St. Paul's cave in the suburbs, where it is said he lived three months. It is in a small church, and by an inscription at the mouth of it, we are informed that this building was repaired by Emanuel Pinto, the predecessor of the *ci-devant* grand master. The cave is in a loose crumbling rock, and the stone on the floor of it, say the priests, is never deficient, although quantities of it are constantly taken away by travellers. We were advised to provide ourselves with a good stock of it, as it was, by the gift of St. Paul, a sure remedy against the bite of any venomous animal. In the cave is a statue of the saint, and without the church, at a small distance, is another, erected upon the spot where he began to preach the gospel in Malta. So say the priests here.

How curiously deep the love of John Barleycorn is implanted in the human breast! How impossible of eradication it seems to be! A trifling anecdote illustrates and teaches that the prohibitionists will have to do more than pass laws for one generation to complete their work of making America safe for the Y. M. C. A. In Algiers—the commandant—after centuries of presumably pious, non-alcoholic, Moham-medan ancestors, had tripped, nay fallen, over the twisted tendril so often blasphemed as a snare.

We waited upon the aga or commandant. We found him lolling upon cushions, placed on a bench against the wall, to all appearance he is not capable of anything else. He appears not many degrees removed from fatuity. He only spoke to us once while we were there, and that was to request us to bring him a bottle of rum at our next visit.

We returned to our vessel, but not before our silent friend the aga had again conquered his taciturnity to remind us of the bottle of rum.

That Shaw's voyages were not devoid of interest is attested by the following (a little comment anent war and fighting is refreshing after hearing so much of the great war that was to end armed conflicts on the earth).

On the sixth of March, he writes:

We discovered a vessel, which, from her manœuvres, every body supposed to be a Frenchman. The passion of avarice, which is seldom dormant in the breast of man, inspired the crew with the hope of prize-money and rendered the men eager to give chase. This was accordingly done, and on coming within gunshot of her, first one gun and then another was fired to bring her to, which last summons she obeyed; but by this time it had grown quite calm so that we could not get up with her, and, night soon coming on, she escaped.

Whether war be the natural state of mankind is a question which has arisen rather from political speculation than from actual observation. But whoever has paid the least attention to men in this *unnatural* state of civilization, as it is called, must have perceived that they are generally so fond of little quarrellings and bickerings, that when they have no real object of contention they will create one. The next morning after this incident, I overheard our sailors disputing how the prize money *ought to have been divided* in case we had taken the Frenchman. Here, perhaps, some one may observe, that it is only among the vulgar and ignorant that this turbulent disposition is to be found; but, my good sir, be pleased to read the history of *quisquis* and *quamquam*, and a thousand other delectable incidents that have set whole nations together by the ears.

The present day race habits are interesting psychologically if one can detach himself sufficiently from the mob to study them. Suppose one could arrive in one of the countries recently at war, with one's sentiments uninfluenced. This is what Shaw was able to do in Malta. How like the rabid press of today the story reads.

We advanced to the city and were shown an embrasure, by which the Maltese entered when they recovered the place from the French. Through this they mounted in the middle of the night to the number of three hundred, and put every Frenchman to death. They then made a large fire and burned the bodies. These islanders are of a revengeful disposition. One of them, on this occasion, is said to have eaten a Frenchman's heart, and at another time, a Maltese cut off the head of a French officer who was slain in a sortie, and bit the nose off. No quarter is ever given to Frenchmen.

Homesickness, *nostalgia*, or something strangely akin to it at times laid hold of Shaw, and he describes his sensations both in prose and verse.

Not only in my sleeping hours, but frequently in my waking reveries, my mind is busy in imagining my return to Annapolis. I seem to see the steeple of the statehouse glittering at a distance through the trees, and my heart beats quicker at the sight. I quicken my steps, and behold my friends at a distance. I advance to meet them; I stretch out my hand to salute them: the dream vanishes, and instead of the borders of the Chesapeake, I behold the rock of Gibraltar and the blue waves of the Mediterranean.

SONNET TO AN OLD TREE

Near St. John's College, Annapolis.

Tree, ancient tree! autumnal storms assail,
Thy shatter'd branches spread the sound afar;
Thy tall head bows before the rising gale,
Thy pale leaf flits along the troubled air.

No more thou boastest of thy vernal bloom,
Thy wither'd foliage glads the eye no more;
Yet still thy presence and thy lonely gloom
A secret pleasure to my soul restore.

For round thy trunk my careless childhood stray'd
When fancy led me cheerful o'er the green,
And many a frolic feat beneath thy shade
Far distant days and other suns have seen.
Fond recollection kindles at the view,
And acts each long departed scene anew.

The same line of thought pervades the poem written after his return to Annapolis, and perhaps one of his best essays in verse.

LINES

WRITTEN ON THE WALL IN THE GALLERY
OF ST. JOHN'S COLLEGE, ON VISITING THE
SAME AFTER A LONG ABSENCE

Thou reverend pile, where erst my careless youth
 Enjoy'd true happiness without alloy,
 Where, when engaged in the search of truth,
 To me each added day brought added joy!
 Again I visit thy thrice-hallow'd walls;
 But ah! how chang'd from what they were before!
 Each object now some absent friend recalls
 Whose well-known visage I behold no more.
 Yet if perchance in future days their eyes
 Should view my fond remembrance here exprest,
 Oh! let the memory of him arise
 Who bears their image graven in his breast!

Who has not experienced disappointment
 at the sight of some object or scene long
 held dear as a dream treasure. The pinnacles
 of the castle of Spain, those enchanted
 towers reared by fancy, are ever far fairer
 than those built by man and many a spot
 transfigured in the imagination is common-
 place to the extreme in reality. Sometimes
 Yarrow is, indeed, best left unvisited.
 Such more than once is the experience of
 every traveler and Shaw was no exception.

Proceeding towards the entrance of the
 Pharos, I began to revolve the poetical stories of
 Scylla and Charybdis. Already I fancied that
 I heard the hollow roarings of the rocks, the
 dashing of the waves, and the howling of the
 sea dogs; I pictured the form of Scylla far above
 and death below; and seemed to behold the
 enormous gulfs that swallowed the waters and
 again threw them out to the heavens; but
 instead of all this, I beheld on the Calabrian
 shore a large rock, and on the other hand a low
 sandy point, between which two the water
 flowed very peaceably without the least ripple
 or dimple on its surface.

Scylla is a large rock on the northern side of
 the entrance adjacent to the shore, and has a few
 small rocks before it in the water. On the beach,
 around the foot of it and on the hill behind it, is
 built the modern town of Sciglio, and on the
 rock itself is the citadel of the place. From this
 to the point of Pharos (formerly Pelorus) on the
 opposite side is about two miles. Within this
 point is the site of Charybdis, but we could

perceive nothing like a whirlpool in the place.
 When however the current sets strongly through
 the strait, this place is full of eddies which
 would swallow up small boats and even give a
 great deal of trouble to large ships. This was the
 case with the Strombolo bomb ship, which
 (as I was informed by her officers in Malta) was
 seized by one of them while under full sail and
 whirled quite round. It is indeed to be expected
 that they must be strong when the current
 sets through fast from the westward, for all the
 water that is heaped up by the winds between
 Sicily and Italy has to take its course through
 here; and being interrupted in its passage by the
 long point of the Pharos, which projects directly
 across the channel, it naturally occasions those
 whirlpools which so perplex those who keep on
 this side of the strait.

The danger on the other side arises from the
 current which sets strongly upon the Calabrian
 shore, and those vessels that, to avoid the whirl-
 pools of Charybdis, keep too much on the other
 side, will run a risk of being lost upon Scylla or
 other rocks upon that coast.

In moderate weather there is not the least
 danger for the smallest boat to venture in any
 part of it, and a knowledge of the currents
 enables the moderns to pass it in safety at
 any time.

The quay is adorned with a statue of Charles
 of Bourbon, and with a fountain, which repre-
 sents Neptune holding Scylla and Charybdis
 in chains.

(N. B. This same Mr. Neptune was a cele-
 brated *pilot*! So I am informed by a Capuchin
 friar, who saw me looking at the statue, and,
 after having begged a few grains for the love of
 the holy Virgin, thought he must not let me
 remain ignorant of this matter.)

A keen sense of values, so often lacking,
 seems to have been deeply implanted in
 Shaw and it shows in more than one of
 his letters. His comment on the death of
 the first President is a striking illustration
 of this.

General Washington I find is dead! The
 conduct of the United States on this occasion
 does them honor. I was afraid the public
 honors decreed him would have awakened the
 clamors of democracy. But envy itself is

dumb before him. Congress have, it seems, decreed a monument to be erected to him. I hope they will not spoil it by engraving on it any long useless epitaphs. To attempt to praise Washington is to dispraise him, and the best inscription for his tomb would be "Here lies George Washington." The greatest eulogy possible upon him is to pronounce his name.

Shaw returned to Annapolis in the spring of 1801, but left again in July, sailing for Edinburgh where he continued his medical studies. He arrived at Glasgow on the fifteenth of September, after a passage of forty-six days. The following letter shows that he listened to famous teachers.

Edinburgh, December 20th, 1801.

Dear Father,

The classes have now been sitting for nearly two months, and I have arranged the course of my studies for the winter. From nine to ten o'clock in the morning I attend Dr. Gregory, who lectures on the practice of physic; from twelve to one, I attend at the Royal Infirmary, at which hour the physician goes round to visit the patients, and the students attend him to take notes of the cases. From one to half after two, I attend Dr. Monro's class, and from three to four Dr. Hamilton's. At four o'clock I dine, and after dinner two days in the week (Tuesdays and Fridays) I attend the clinical lectures by Dr. Hope and Dr. Duncan, and every Monday night I have to attend the Royal Physical Society from six to eleven o'clock. These occupations take up the greater part of my time and I find that the remainder of it is little enough to prepare myself for the next day. The few hours of daylight that we have here are all taken up by the lectures, and the only time for study is by candlelight. A great many of the students here pretend that this has much injured their sight, and at the lectures one may see a great number of the young men wearing spectacles; but I am inclined to think that this is in a great measure affectation, for although my eyes were always none of the best, yet I do not find that this great use of candles causes them more inconvenience than I experienced in the short nights of America. I have however, on

account of my being naturally shortsighted, been obliged to make use of a concave eye-glass, in the anatomical theatre; for, as I very seldom could get a front seat, I found that it would be of no use to attend the lecture without something to assist my eye-sight, in order to see accurately the subject of demonstration. The effect that this has upon my vision is wonderful. I had no idea before that it was possible for me to be made to see so well; and if the rest of mankind see as well without a glass as I do with one, they enjoy a quickness of sight of which until now I had no conception.'

Your affectionate son,
JOHN SHAW, junr.

Shaw was a scholar of no mean ability and diverted himself by reading the classics in the original tongues. This side of him is well illustrated by an extract from one of his letters.

No doubt you will imagine that I am hailing this alma mater, the end of my peregrination; that day sees nothing but my researches in the annals of medicine, and that by night the ghost of Hippocrates hovers o'er my slumbers. Maybe-so; but I am afraid that the old gentleman would be scared away by the apparatus which he would find upon my table. I verily suspect that the first thing he would lay his hand on, would be a *medical treatise* entitled *De Arte Amandi*, written by one Dr. Ovid, an eminent physician in the days of old, although I cannot learn from what college he got his degrees.

I have been employing my time upon the passage in reading some of the Latin poets. Virgil I have read over again with undiminished pleasure. Lucan I toiled through. A dull newspaper in verse, unworthy to be called a poem. But the latest objects of my studies have been, Catullus, Tibullus, Propertius, and Ovid. As you are determined to find no merit in Catullus, when compared to your favorite Dutchman Secundus, I shall say nothing about him, but let me beg you to read Tibullus. I suspect that you will prefer Ovid to him, but I cannot hold with you. Ovid has more addresses to the fancy, has more of sensuality and libertinism in his writings, but Tibullus is by far more tender and has more of real love; the one always considered

what pretty things might be said on the subject he has chosen, the other only pours forth the genuine feelings of his heart. There is in the last elegy of Ovid's second book of amours, a very exact delineation of some sentiments that you once expressed to me, viz., that there was no pleasure in gratifications that were easily obtained.

Perhaps the following poem dates from this period.

TRANSLATIONS FROM ANACREON

Ode I

Fain would I strike the sounding strings
To deeds of heroes and of kings;
But fruitless all my efforts prove;
The chords still murmur notes of love.

I change and change the strings in vain,
And raise aloud the epic strain;
They still refuse the lofty lay,
And sink to softer sounds away.

Ye heroes and ye kings, adieu!
No more I tune my strains to you.
Myself, my lyre, to Love belong,
And only *Love* shall grace my song.

After a year and a half spent in Edinburgh clinics, he left Scotland in company with the Earl of Selkirk, who had a settlement on St. John's Island, in upper Canada, and while there had an extensive practice and very arduous labors in connection with some severe epidemic disease, the exact nature of which he does not state.

In the early part of the year 1805 Dr. Shaw returned to Annapolis, and commenced the practice of physic in connection with Dr. Shaaf. In this situation he remained during two years. In February 1807, he married Miss Jane Selby, a lady to whom his heart had long been pledged. In consequence of this union it became necessary to seek some more extensive field than a village practice afforded. In his native town he could enumerate many friends to whom he was warmly attached; but his mode of life was toilsome to an excessive degree, and the profits he derived were

scarcely worthy of consideration. He hesitated some time between Georgetown and Baltimore, but at length decided in favour of the latter city.

By the blessing of St. Chrysostom I am at present in a fair way to quit this place, and to become a resident of Baltimore. Already the genius of the place seems to inspire me, and dollars, turnpikes, banks and water stocks, dance through my brains in mingled confusion. The whispering *angels* that prompt my golden dreams, have again called my attention to our reverend patron, and urge me to exert myself in this, the only way that is open to my *un-money-making* temperament. As I am therefore in great haste, and in no less need for our Saint's assistance, I hope you have not forgotten our plans, but will soon be ready in the litany, *O Sancte Chrysostome! ora pro nobis.*

I have examined the college library and find many valuable books in it. There is an edition of Chrysostom in twelve volumes, three of which are wanting. There are also St. Austin, St. Jerome and St. Hilary; Socrates and Sozoman's histories, both valuable books. Also the works of Sir Thomas Pope Blount, who gives a life of every classical author from Homer down to Bacon; and also the Testimon. Viror. Erudit. concerning each of them. He has a good deal about our Saint, among which is a curious specimen of the difference between the opinions of men written for the public and those which they profess in private conversation. J. C. Scaliger, in his writings, has extolled Chrysostom in the same manner that everybody else has done; but in the Scaligeriana, published after his death, we find these words, "*C'étoit un orgueilleux vilain—il étoit exilé, et il méritoit de l'être;*" and (*entre nous*) I cannot but half agree with him.

EPITHALAMIUM

How fair, how sweet the blushing rose!
How glorious to th' enraptur'd view!
As with enliven'd tints it glows
All glistening in the morning dew.

By many a soft descending shower
The beauteous plant is gently fed,
And many a kind aerial power
Sheds fragrance o'er its tender head.

So fair, so sweet, the youthful maid,
 O'er whose warm cheek soft blushes fly,
 Her face in beaming smiles array'd,
 While love sits trembling in her eye.

That blushing cheek, love-darting eye,
 That face in beaming smiles array'd,
 Ah happy bridegroom! thine the joy!
 For thee are all those charms display'd.

Then, lover, seize the present hour
 That views them yet in all their prime,
 Ere winter nip the blooming flow'r,
 And youth and beauty yield to time.

Some of the verses were written to various young ladies, the names of some of whom are still prominent in Maryland society, now and then he drops into a humorous vein.

KISSES

In a company of ladies who were repeating Dean Swift's "*Recipe for Courtship*," it was observed that he had forgotten to mention kisses. This deficiency was supplied by two extempore lines of the author; and one of the ladies requesting him to give her a copy with the additional couplet, he sent it to her accompanied by the following verses.

When the Dean of St. Patrick's composed his receipt
 To court, sigh, and flatter, talk nonsense and treat,
 The ladies quite vex'd and astonish'd declar'd
 That they could not imagine what was in the bard,
 Who not one single word about kisses had said,
 As if they had never come into his head.
 But of all the dear transports from kisses that flow,
 Say what should a frouzy old bachelor know,
 Who ne'er dar'd the delicate odors to prove
 That breathe from the lips of the object we love?
 Then scorn the dull Doctor's satirical rules,
 Nor heed him, ye fair, when he christens you fools:
 Let courtship and love be the theme of each tongue,
 And take for your tutor a swain that is young,
 A swain who, well pleased your tutor to be,
 Will not limit his kisses to two or to three.
 As for me, if that office should e'er be my lot,
 I assure you that they should be never forgot:
 Nor hundreds nor thousands my kisses should count,
 But *perhaps* a few millions *might* tell the amount;
 For it is, if you'll trust me and take my advice,
 Not the way to be fools, but the way to be wise.

Perhaps the gem of the collection of poems is the doggerel which follows. The period was one of freedom, for while there were many prohibitive laws in the land and Maryland had its share of the Puritan heritage of repression, one's private life remained more or less unhampered and one ate, drank and smoked and wore what one pleased. Times have changed sadly. We have entered an era of piety and purity by legislation attempted hundreds of times before in one way or another but up to the present all attempts have failed signally, and the present attempt will eventually go the way of all its predecessors. The nature of man has not changed essentially from the earliest times of which we have anything approaching authentic records and it is safe to assume that an act of legislature will not scratch the surface of the hardened race. It may divert him for a while, but in the end—well, this will cease to be what George Ade calls the home of the ex-free.

Imagine anyone writing verses nowadays about Congress deciding on a national drink. Surely much water has passed by the mill since Shaw's day. But to the poem.

PRESIDENT WHISKEY

Some talk of Sir Richard and some of Sir John,
 And some pay their homage to Emperor Port,
 But believe me at best they are only a jest
 Compar'd to good Whiskey, the father of sport.

'Twas but t'other day at the town in the woods
 Where meet the wise Heads in a grand consultation;
 They resolved to choose (believe but the Muse)
 A congressional drink for the good of the nation.

Too long to molasses and water confin'd
 They said that their force could no longer hold out,
 'Mid such weighty affairs, if to soften their cares,
 They could not get a potion of something more stout.

Then so great was the bustle the point to decide,
 E'en Louisiana was thought of no more,
 Till the business came on, and was carried nem. con.
 That republican Switchel be kick'd out of door.

But to choose its successor was not done so soon,
 For each prais'd the liquor he lov'd, as divine;
 E'en Mammoth the great fell asleep as he sate
 And dream'd that Missouri ran purple with wine.

Some spoke of Peach Brandy, and some of Brown
 Stout,
 And others of Cider so sparkling and clear;
 Some endeavor'd to gain the cause for Champagne,
 While a few were contented with Baltimore Beer.

Some sugarsops too were to Malmsey inclin'd,
 And others for Burgundy had a great notion,
 While some swore that Sherry would make them so
 merry,
 Not nectar itself could deserve more devotion.

One said that a good constitutional bowl
 Of Punch were an emblem fit for the occasion,
 Where strong, sweet and sour together you pour,
 Like president, senate, and representation.

Beau Trippet wish'd much for a glass of Liqueur,
 Which so lately he sipp'd with the ladies in France,
 But—said for a dram he would not give a damn
 While he could get good Cognac or old Nantz.

Squire Bowwow then rose with a belly rotund
 And made a short speech for a bottle of Port,
 When we come from the race or have finish'd the
 chase,
 Of the fox this will give the best crown to our sport.

When with a grave face Dr. Septon got up
 And gave a long talk which but few understood,
 But the meaning was this, if I heard not amiss,
 "Lime-water and Soapsuds would do them more
 good."

But, sage of Manhattan, thy rhet'ric was vain,
 For patriot Van Stagger observ'd with a grin,
 "I surely mush tink dat a mush petter trink,
 (If you pys it from me) is my own Hollands Gin."

But Gin, Port, and Soapsuds were all of them
 scouted,
 When orator Bumper began his discourse,
 Who in praise of Madeira with rhetoric cheery,
 Knew how to his subject to give the most force.

In 1807 Shaw removed to Baltimore
 where he was elected physician to the Balti-
 more General Dispensary. Baltimore was
 then a city of considerable importance,

numbering about 40,000 souls and the third
 largest city in the United States. At this
 time, there were thirty-four physicians
 practicing medicine in the town. This was
 also a year of an epidemic of influenza of
 considerably severity, but whether Shaw
 contracted the disease and so prepared the
 soil for his subsequent infection with tuber-
 culosis is not known.

Medical education in the United States
 was progressing. The University of Pennsyl-
 vania had been founded in 1765 under the
 name of the College of Philadelphia, the
 medical school at Harvard in 1782, that at
 Dartmouth in 1798 and the College of
 Physicians and Surgeons of New York in
 1807. But Baltimore at this time did not
 have a medical school, although some
 instruction was given in medicine, espe-
 cially by Dr. John B. Davidge, who gave
 lectures on midwifery in 1804. The previous
 year a committee of five had been appointed
 from the Medical and Chirurgical Faculty
 of Maryland to plan the establishment of a
 College of Physicians. In 1807, Shaw joined
 with Dr. Davidge and Dr. James Cocke
 and gave a course of lectures to medical
 students. It is supposed that there were
 seven in the class.

In the same year the College of Medicine
 of Maryland was chartered by the State
 Legislature and so was the forerunner of the
 University of Maryland with which it was
 merged in 1812. When the bill was before
 the house an amendment was offered to
 make the medical school a part of St.
 Mary's College, an institution which at
 that time aspired to become a university
 and had a literary department, but even-
 tually the school work was limited to the
 education of priests of the Roman Catholic
 Church. The amendment was not carried.

A very remarkable thing occurred in
 connection with granting the charter to this
 medical school. Three of the regents, Drs.
 Shaw, Thomas E. Bond, and William
 Donaldson had never had the degree of

M.D. conferred upon them. In the act, however, their names are followed by M.D., and it is related that while the clerk was reading the bill a member recognized a friend among the untitled and interrupted him, saying: "that he did not know whether Dr.———should not as well be an M.D. as Dr.——— and Dr.———." He then proposed that these letters be inserted after his name. As no objection was offered this was done and as is facetiously said, they became doctors of medicine by act of Assembly.

Another remarkable provision is that the Medical and Chirurgical Faculty of the State of Maryland was given control of the institution and this has never been formally relinquished. The regents of the University took this matter to the courts in 1838. The Court of Appeals of Maryland delivered an opinion declaring that the act of 1807 was still in force and that the second charter, that of the University of Maryland, did not invalidate the first, and that adding to the college other colleges, the former did not lose its identity or continuity but continued amenable to the law of 1807. The two institutions, however, have been entirely separate and distinct since this time and there is scarcely any question that the Medical and Chirurgical Faculty will ever attempt to enforce its prerogatives.

Instruction was first given at the houses of the various teachers and Shaw held the chair of chemistry.

Shaw was an enthusiastic teacher and worked hard at his experiments in chemistry, and he developed a cold in 1808, in consequence of spending all night in some research work in which it was necessary to immerse his bare arms frequently in cold water. At about this time, he evidently contracted tuberculosis, for this complaint developed shortly after and made rapid

progress during the spring and summer. In the autumn, he sailed from Baltimore to Charleston, South Carolina, in hopes that a warmer climate might restore his health. From there he set sail for the Bahama Islands, but he died on the way on the tenth of January, 1809.

Shaw was a minor poet, as his poems bear witness, but his verses are not without charm and many show that he possessed the saving grace of humour, while others disclose the slightly melancholic philosophizing strain so common to youth, poets and decaying surgeons. The few quoted illustrate all these points and it will be seen that he wrote after the sober-sided manner of his time. From the poems of any period, one can in a measure reconstruct the mental attitude of at least a portion of people of that particular era and this gives a new value and charm to the work of many minor singers.

As a physician, Shaw was well educated according to the standards of his period and gave promise of becoming one of the famous teachers of his time, had not the Minotaur to whom so many of the flower of youth are sacrificed ended his labors almost ere they were begun. Indeed, the list of medical men victims of tuberculosis is appalling and includes some of the best known names. Shaw had a taste for teaching and would doubtless have left a name for himself in this direction as well as in medical research and practice. He has passed and his name is now only known to a few who frequent book sales with a view of picking up items of early Americana in general and Maryland contributions in particular. Our early teachers and founders of medical institutions should not be allowed to pass out of the mind of man. Hence this brief account of the man and his work.

MONTAIGNE AND MEDICINE

BY J. S. TAYLOR, M.D.

WASHINGTON, D. C.

PRESERVATION OF HEALTH

(Continued)

MONTAIGNE was a great believer in the cult of health, in that preventive medicine not yet crystallized into a branch of the art but dimly apprehended through the ages. "Tis no time to bathe and clean a man's self when he is seized on by a violent fever. . . I am more solicitous to improve my health when I am well, than to restore it when I am sick." (Of Vanity).

His ideas about the insanitary pocket handkerchief must often have occurred to many of us but civilization increasingly imposes obligations distasteful or harmful to the individual in the interests of the community.

A French gentleman, of my acquaintance, was always wont to blow his nose with his fingers (a thing very much against our fashion) would justify himself for so doing and was a man very famous for pleasant repartees, who, upon that occasion, asked me what privilege this filthy excrement had, that we must carry about us a fine handkerchief to receive it, and which was more, afterwards to lap it carefully up, and carry it all day about in our pockets, which, he said, could not be much more nauseous and offensive, than to see it thrown away, as we did all other evacuations. I found that what he said was not altogether without reason, and by being frequently in his company, that slovenly action of his was at last grown familiar to me; which nevertheless we make a face at, when we hear it reported of another country. (Of Custom.)

Montaigne attached importance to odors.

But the ordinary constitution of human bodies is quite otherwise, and their best and chiefest excellence, is to be exempt from smells; nay,

the sweetness even of the purest breaths,' has nothing in it of greater perfection, than to be without any offensive smell, but those of healthful children. And such as make use of these exotic perfumes, are with good reason to be suspected of some natural imperfection, which they endeavor by these odors to conceal. (Of Smells.)

Physicians might (I believe), if they would, extract greater utility from odors, than they do; for I have often observed, that they cause an alteration in me, and work upon my spirits according to their several virtues; which make me approve of what I said, namely, that the use of incense and perfumes in churches, so ancient and so universally received in all nations, and religions, was intended to cheer us, and to rouse and purify the senses, the better to fit us for contemplation. (Of Smells.)

He was himself peculiarly susceptible to their influence.

'Tis not to be believed, how strangely all sorts of odors cleave to me, and how apt my skin is to imbibe them. He that complains of nature, that she has not furnished mankind with a vehicle to convey smells to the nose, had no reason; for they will do it themselves; especially to me: my very mustachio's perform that office; for if I stroke them but with my gloves, or handkerchief, the smell will not out a whole day: they will reproach me where I have been. (Of Smells.)

He went far ahead of Osler in discrediting the performance of the aged.

Of all great human actions I ever heard, or read of, of what sort soever, I have observed, both in former ages, and our own, more performed before the age of thirty, than after: and oft-times in the very lives of the same men.

Sometimes the body first submits to age,

sometimes the soul, and I have seen enow, who have got a weakness in their brains, before either in their hams, or stomach: and by how much the more it is a disease of no great pain to the infected party, and of obscure symptoms, so much greater the danger is. (Of Age.)

He was an apostle worthy to be classed with the Venetian nobleman Cornaro, who began to reform his ways at forty and was rewarded with more than half a century of health and happiness thereafter.

Health is a precious thing and the only one, in truth, meriting that a man should lay out, not only his time, sweat, labour and goods but also his life itself to obtain it forasmuch as without it life itself is injurious to us.

Health, I say, the fairest and richest present that nature can make us. (The Apology.)

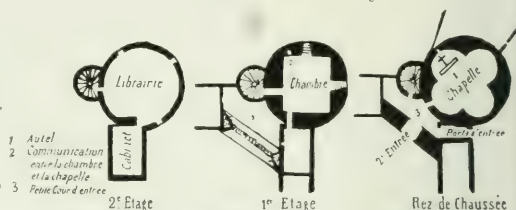
For the greatest part of pleasures, (say they), wheedle and caress, only to strangle us, like those thieves the Egyptians called Philiste; and if the headache should come before drunkenness, we should have a care of drinking too much: but pleasure to deceive us, marches before, and conceals her train. Books are pleasant, but if by being over studious, we impair our health, and spoil our good humor, two of the best pieces we have, let us give it over; for I for my part am one of those who think, that no fruit derived from them, can recompence so great a loss. As men who feel themselves weakened by a long series of indisposition, give themselves up at last to the mercy of medicine, and submit to certain rules of living, which they are for the future never to transgress; so he who retires, weary of, and disgusted, with the common way of living, ought to model this new one he enters into, by the rules of reason, and to institute and establish it by premeditation, and after the best method he can contrive. (Of Solitude.)

My chiefest care in choosing my lodgings, is always to avoid a thick and foul air; and those beautiful cities of Venice and Paris, have very much lessened the kindness I had for them, the one by the offensive smell of her marshes, and the other of her dirt. (Of Smells).

Two centuries later Dickens, in a similar vein, has a fling at Cologne.

Montaigne recognizes the existence of remedies in nature.

I very well know there are some simples that moisten and others that dry, I experimentally know that radishes are windy and senna



Plan and view of Montaigne's Tower, as it appeared in 1823.

leaves purging . . . I very much honor that glorious name (physic) and the end it is studied for and what it promises to the service of mankind; but what it foists upon us I neither honor nor can esteem. In the first place experience makes me dread it; for amongst all my acquaintance, I see no race of people so soon sick and so long before they are well as those who take much physic.

Here follows the charge that physicians actually seek to corrupt health itself for

fear men should at any time escape their authority. It is terrible but true. The doctor who calls bronchitis, "pneumonia," indigestion, an "ulcer of the stomach;" talks of warding off a disease or accident that would infallibly have supervened but for his timely presence, who tells a patient he was "threatened" with this or that awful disease, may not be as common today as he was in Montaigne's time but he is with us still.

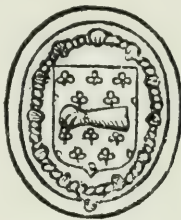
MONTAIGNE'S ATTITUDE TO MEDICINE

He offers a historical retrospect to show how medicine was looked down on in Rome, adverts to strange practices among various races and concludes with caustic comment on the common practice of ordering violent purges. "I do not know whether such evacuations be so much to our advantage as they pretend . . . the violent gripings and contest between the drug and the disease is ever to our loss . . . Order a purge for your brain, it will then be much better employed than upon your stomach. Physicians ascribe all favorable results to what they ordered; the unfavorable ones are explained by frivolous and idle reasons"—an open window, sleeping on the left side or with the arms out of bed.

On suggestion and deception he has some apposite remarks. Physicians maintain that "the most inexpert, ignorant physician is more proper for a patient that has confidence in him than the most learned and experienced that he is not acquainted with. Nay even the very choice of most of their drugs is in some sort mysterious and divine." He cites articles of the prevalent pharmacopeia—the left foot of a tortoise, the urine of an elephant, the liver of a mole, etc., "and for us who have the stone (so scornfully they use us in our miseries) the excrement of rats beaten to powder and such like trash and fooleries which rather carry a face of magical enchantment than any solid science. I omit the odd number of

their pills, the appointment of certain days, feasts of the year, the superstition of gathering simples at certain hours." . . . "Who ever saw one physician approve of another's prescription without taking something away or adding something to it?"

Montaigne knew his history of medicine and points out the mistakes of physicians, the discrepancies in their teachings from Hippocrates and Herophilus to Argenterius and Paracelsus. (The latter's dogmatism



Small seal used by Montaigne in personal correspondence and in communications to Henry IV.



Large official seal. The arms are: On a field azure, ten trefoils or, bearing a lion's paw of the same, armed gules, per fesse.

and conceit are known to Montaigne.) The art of physic is not so resolved that we need be without authority for what we do; it changes according to the climates and the moons, according to Fernel and L'Escale. (Of Experience.) How often do we see physicians impute the death of their patients to one another. After a recent visitation of the plague which "swept away an infinite number of men" the "most famous physician of all the country" published a book confessing that blood letting in that disease was the cause of so many fatalities.

That the rational practice of medicine is no easy matter he readily concedes.

If we but consider the occasions upon which they usually ground the cause of our diseases, they are so light and nice that I thence conclude a very little error in the dispensation of their drugs may do a great deal of mischief. Now if the mistake of a physician be so dangerous we are but in a scurvy condition, for it is almost impossible but he must often fall into those mistakes: he had need of too

many parts, considerations and circumstances rightly to level his design; he must know the sick person's complexion, his temperament, his humors, inclinations, actions, nay his very thoughts and imaginations. He must be assured of the external circumstances, of the nature of the place, the quality of the air and season, the situation of the planets and their influences: he must know in the disease the causes, prognostic, affections and critical days; in the drugs, the weight, the power of working, the country, figures, age and dispensation and he must know how rightly to proportion and mix them together, to beget a just and perfect proposition, wherein if there be the least error, if amongst so many springs, there be but any one out of order, 'tis enough to destroy us. God knows of how great difficulty most of these things are to be understood. For (for example) how shall a physician find out the true sign of the disease, every disease being capable of an infinite number of indications? How many doubts and controversies have they amongst themselves upon the interpretation of urines? . . . In the disease I have had were there never so little difficulty in the case I have never found three of one opinion, which I instance because I love to introduce examples wherein I am myself concerned.

Montaigne now cites instances of mistaken diagnosis where operation or autopsy disclosed the error. One of these, "a bishop who was my particular good friend," was advised by Montaigne, on the statements of the attendants to undergo operation. "When he was dead and opened," the stone was not in the bladder but in the kidney. "They are least excusable for any error in this disease by reason that it is in some sort palpable: and 'tis by that that I conclude chirurgery to be much more certain by reason that it sees and feels what it does and so goes less upon conjecture whereas the physicians have no speculum matricis by which to discover our brains, lungs and liver." A further menace to the patient lies in the errors of the druggist. "And is not the danger still more when the making up of this medicine is intrusted to the skill

and fidelity of another, to whose mercy we again abandon our lives?" He adverts now to the need of specialties. Our physicians "are not aware that he who provides for all, provides for nothing, and that the entire government of this Microcosm is more than they are able to undertake."

To sum up these quotations and other passages, we must conclude that Montaigne was far from entertaining an ignorant and superstitious prejudice against medicine and its professors. On the contrary he perhaps shows himself more enlightened, dispassionate, reasonable and philosophic in this connection than in any one of the countless subjects over which his tireless fancy roamed. Montaigne recognized, as few of our bitter and shallow critics do, the inherent difficulties of the art of healing, the vastness of the field, its seriousness, its dangers. He appreciated the confusion which constantly arises through a general similarity of manifestations in acute disorders; the need of precise methods of diagnosis; the importance of concrete physical findings. He admits that there are ponderable substances that produce definite reactions in the body and that they can be utilized for man's good. He perceives the way patients themselves contribute to debase the art by submitting to any and every measure that any person whatever may recommend in their "violent and indiscreet desire of a present cure." It is pure cowardice that makes "belief so pliable" and patients so acquiescent, the dupes of impostors, of any one that will promise a cure. He does not "much blame them for making their advantage of our folly, for most men do the same. Many callings, both of greater and less dignity than theirs, have no other foundation or support than public abuse." Apparently the sophistications and substitutions of the compounder, intermediary between physician and patient, are not unknown to Montaigne and he sees in their accidental

or wilful errors a further ground for mistrusting the doctor.

Finally there is the fallibility of human experience and its evaluation. "And after the cure is performed how can he assure himself that it was not because the disease was arrived at its period or an effect of chance? Or the operation of something else that he had eaten, drunk or sucked. Or by virtue of his grandmother's prayers?" He realizes that a serious attempt to unravel the secrets of nature must inevitably be one of incredible difficulty. The subjects for investigation, the phenomena observed are so infinite in number that honest research exhausts itself before a sufficient number of experiments could be properly sorted, classified, recorded, interpreted and verified. There will be conflicting reports from honest students. There will be many just observations made by obscure men that will not come to light. Looking back on the history of medicine he finds but three instances of investigators attempting really scientific work.

It is from all this and not from the mistakes of his contemporaries and the foibles of human nature in patient and physician that Montaigne grows skeptical both regarding the existing possibility of successful healing and the future of medicine. Thus he has the wit to find a real ground for distrusting it and naturally enough he could not foresee how all the indispensable assets of genuine therapy would one day be realized in the host of laboratories where countless plodders are seeking the truth; in the practical study of disease in hospital and clinic. The microscope, the stethoscope, the thermometer, the x-ray, and innumerable mechanical devices of common use today were all unknown. The spirit of scientific research had not replaced speculation and metaphysics in a realm where action inspired by speculation was a constant menace to the confiding.

And in spite of all that reason told him

on the one hand, Montaigne was still so human, so reasonable, so open to conviction that when he could no longer find solace from the knowledge he possessed about health and disease, he humbly submitted to the ministration of such physicians as he believed learned and eminent. He was too clear-headed, too fair, in spite of all his sweeping and just criticisms of the fraternity, to hold that there were not exceptional men and exceptional results. "I honor physicians not for necessity. . . but for themselves having known many very good men of that profession and most worthy to be believed." He does not attack them but their system, and what a wretched iron-bound, self-satisfied, arrogant, vaunting, ignorant and deadly system it was in his day! "When I am sick I send for them, if they be near, only to have their company and see them as others do." And he obeys their directions in so far as these harmonize with his comfort, his experience and his common sense.

I summon them when I am ill, if they happen to be there at the right moment. They may choose whether my soup shall be made of hotch-potch vegetables or of lettuces, they can order me white wine or claret; and so with all other things that are merely indifferent to my appetite. (*Resemblance of Children to Parents.*)

Montaigne frankly admits that he would not dare to make so bold with the mysteries of physic had he not the authority of Celsus and Pliny, ascribing to the latter the acute observation that when physicians are at a loss what to do they send their patients "some to vows and miracles others to the hot baths and waters;" and one more device, says Montaigne, is "to send us to the better air of some other country."

MONTAIGNE AS A PATIENT

The more we penetrate to Montaigne's inmost spirit the more we feel that, were he with us today, he would make an ideal patient. His common sense, his patience, his

fortitude, his liberality, his keen perceptions, his discrimination, his knowledge of human nature and above all his willingness to trust and confide where dispassionate observation seemed to justify it, would have insured a free hand to the honest, methodic internist, utilizing diagnostic devices and remedies of proved merit.

A man may find those for his money that will shift his pillow, and rub his feet, and will trouble him no more than he would have them, who will present him with an indifferent countenance, and suffer him to govern himself, and to complain according to his own method. . . I have seen some, who have taken it ill when they have been told that they looked well, and that their pulse was temperate, contain their smiles, because they betrayed a recovery, and be angry at their health because it was not to be lamented; and which is a great deal more, they were not women neither. I describe my infirmities, but such as they really are at most, and avoid all expressions of ill prognostic and composed exclamations. If not mirth, at least, a temperate countenance in the standers by, is proper in the presence of a wise sick man. He does not quarrel with health, for seeing himself in a contrary condition. He is pleased to contemplate it sound and entire in others, and at least to enjoy it for company. He does not, for feeling himself melt away, abandon all thoughts of life, nor avoid to discourse of ordinary and indifferent things. I will study sickness while I am well; when it has seized me it will make its impression real enough, without the help of my imagination. We prepare ourselves before hand for the journey we undertake and resolve upon, we leave the appointment of the hour when to take horse to the company, and in their favor defer it.

The groans forced by the pain of the stone, were grown so familiar to my people, that nobody took any more notice of them. . . But in these travels you may be surprised with sickness in some wretched place where nothing can be had to relieve you; I always carry most things necessary about me; and besides, we cannot evade fortune, if she once resolves to attack us. I need nothing extraordinary when I am sick.

I will not be beholden to my Bolus to do that for me which nature cannot. At the very beginning of my fevers, and sicknesses that cast me down, while entire, and but a little disorder in my health, I reconcile myself to Almighty God by the last Christian Offices, and find myself by so doing less oppressed, and more easy, and have got methinks so much the better of my disease. And I have yet less need of a scrivener or counsellor, than of a physician. To conclude the account of my frail humors, I do confess, that in my travel, I seldom come to my inn, but that it comes into my mind to consider whether I could there be sick, and dying at my ease; I would be lodged in some convenient part of the house, remote from all noise, ill scents, and smoke. (Of Vanity.)

In his portrayal of his attitude to sickness and his conduct under suffering he is at his best. His observations should be read and pondered by every doctor.

I think it to be more wholesome to eat more leisurely and less and to eat oftener; but I would have the value of appetite and hunger done Justice to. I should take no pleasure to be fed with three or four stinted repasts a day, at fixed hours, after a medical manner; who will assure me that, if I have a good appetite in the morning, I shall have the same at supper? Let us old fellows, especially, take the first opportune time of eating and leave to almanac-makers the hopes and prognostics. (Of Experience.)

I have no custom that has not varied according to accidents; but I only record those that I have been best acquainted with, and that hitherto have had the greatest possession of me. My form of life is the same in sickness that it is in health, the same bed, the same houses, the same meat, and the same drink serve me in both conditions alike; I add nothing to them but the moderation of more or less, according to my strength and appetite. My health is to maintain my wonted state without disturbance. I see that sickness puts me off it on one side, and if I will be ruled by the physicians, they will put me off on the other; so that by fortune and by art I am out of my way. I believe nothing more certainly than this, that I cannot be

offended by the usage of things to which I have been so long accustomed. . . . You make a German sick if you lay him upon a quilt, as you do an Italian if you lay him upon a featherbed; and a Frenchman without curtains or fire. A Spanish stomach cannot hold out to eat as we can, nor ours to drink like the Swiss. (Of Experience).

And, without a force—upon myself, cannot sleep in the day time, nor eat between meals, nor breakfast, nor go to bed, without a great interval betwixt eating and sleeping, as of three hours after supper; and never standing upon my feet, nor endure my own sweat, nor quench my thirst either with pure water or wine, nor keep my head long bare, nor cut my hair after dinner; and should be as uneasy without my gloves, as without my shirt, or without washing when I rise from table, or out of my bed; and could not lie without a canopy and curtains, as if they were necessary things; I could dine without a tablecloth, but not without a clean napkin, after the German fashion, very incommodiously. I foul them more than they, or the Italians do, and make but little use either of spoon or fork . . . Nature has also on the other side, helped me to some of hers, as no more to be able to endure two full meals in one day, without overcharging my stomach, nor a total abstinence from one of those meals, without filling myself with wind, drying up my mouth, and dulling my appetite, and finding great inconvenience in the evening air. For of late years, in night marches, which often happen to be all night long, after five or six hours, my stomach begins to be quessie, with a violent pain in my head, so that I always vomit before the day can break. When others go to breakfast, I go to sleep, and when I rise, am as brisk and gay as before . . . And I am sorry for several gentlemen, who through the folly of their physicians, have in their youth and health put themselves into consumptions . . . A man should addict himself to the best rules, but not enslave himself to them. Alteration, be it what it will, does distemper and astonish. Can any believe that chestnuts can hurt a Perigourdin, or one of Lucca; or milk and cheese the mountain people; men enjoy then not only a new, but a contrary method of life, a change

that the more healthful could not endure. Prescribe water to a Breton of threescore and ten, shut a sea man up in a stove, and forbid a Basque footman walking, they will deprive them of motion, and, in the end of air and light . . . Both well and sick, I have ever willingly suffered myself to obey the appetites that pressed upon me. I give great authority to my propensions and desires. I do not love to cure one disease by another. I hate remedies that are more troublesome than the disease itself. To be subject to the stone, and subject to abstain from eating oysters, are two evils instead of one. The disease torments us on the one side, and the remedy on the other. Since we are ever in danger of mistaking, let us rather hazard, rather defer the discovery of the mistake till after pleasure . . . Acrimony and quickness in sauces were pleasant to me when young, but my stomach disliking them since, my taste incontinently followed. Wine is hurtful to sick people; and 'tis the first thing that my mouth disrelishes when I am sick, and with an invincible distaste. Whatever I take against my liking, does me harm; and nothing hurts me that I eat with appetite and delight; I never received harm by any action that was very pleasant to me; and accordingly have made all medicinal conclusions mightily give way to my pleasure. Physicians do ordinarily submit their rules to the violent longings that happen to sick persons, with very good success . . . I am sorry when I am sick, that I have not some longing that might give me the contentment of satisfying it; all the rules of physic would hardly be able to divert me; I do the same when I am well. I have observed, that both in wounds and sicknesses, speaking discomposes and hurts me as much as any disorder I can commit. (Of Experience.)

Montaigne, like most sufferers from gout, was proud of his complaint. He viewed his afflictions as to some extent incident to his time of life—"the gout, the stone, indigestion are all symptoms of long years as heat, rains and winds of long voyages." (Of Experience.)

We give here a facsimile of a note made by Montaigne in regard to his brief sojourn

in the Bastille. This is found in a copy of the "Ephémérides" of Beuther which appears to have been used by the Montaignes for entries of births, deaths, marriages, etc., very much as the family Bible is used among us today.

1558. Between three and four o'clock in the afternoon, being lodged in the Faubourg St. Germain at Paris and sick with a sort of gout which had seized me for the first time just three days before, I was made prisoner by the Captains and Citizens of Paris (it was during the period that the king had been put out by M. de Guise), conducted to the Bastille and given to understand that it was at the instance of the Duke of Elbeuf and by way of reprisal for the case of a certain Norman gentleman, his kinsman, that the King held a prisoner at Rouen. The Queen Mother of the King apprised by Mr. Binard, state secretary, of my imprisonment, obtained from M. de Guise, who was in her good graces and from the Provost of the Merchants to whom she sent word (M. de Vil-leroy, state secretary, also exerting himself strongly on my behalf) that about eight o'clock of the same day a royal steward came to set me free by virtue of a warrant from the aforesaid Lord Duke and of the said Provost addressed to the clerk, Captain, for the time being, of the Bastille.

This occurred July 10. Montaigne's gout was in the left foot and he was conducted to the Bastille mounted on his own horse. The queen was in council together with the Duke of Guise at the time of the arrest and learned of it through popular rumor.

He views his situation with a certain complacency, forcing himself like a true philosopher to recognize how even with the stone he is better off than he might be under some other affliction.

The stone has this privilege, that it carries itself clean off. Whereas others always leave behind them some impression and alteration, that renders the body subject to some new disease, and lend a hand to one another . . . Since I have been troubled with the stone, I find myself freed from all other accidents, much more

methinks than I was before, and have never had any fever since. I argue, that the extreme and frequent vomitings that I am subject to, purge me: and on the other side, my nausities, and the strange fasts I am forced to keep, digest my present humors; and nature in those stones voids whatever there is in me of superfluous and hurtful. Let them never tell me that it is medicine too dear bought. For what avails so many apozemes, caustics, incisions, sweats, setons, diets, and so many other methods of cure;

Montaigne mis à la Bastille

1558 entre trois et quatre après midi
estant logé aux faubourgs germains à Paris
et malade d'un epece de goulle qui lors
premier meut maux se fit il y eut instant
trois iours iefus pris prisonier par les capiteins
et peuple de Paris estoit au temps que le Roy
et estoit mis hors par plusieurs de guise frs
mené en la bastille et me fut assigné que estoit
a la sollicitation du duc d'Elbeuf lequel par
droit de représailles et au lieu d'un sien parat
iait l'homme de normandie que le Roy tenoit
prisonier a Rouen la vaine mere du roy au des
par mignars secretaire d'estat de mon enpris
sonement obtint de m'assigner de guise qui estoit
lois de fortune avec elle et du preuost des
marchans neos le quel elle enuoia (m'assigner de
millevois) secretaire d'estat sien assignant aussi
bien fort en ma faueur que sur les huit heures
du soir de me faire un maistré d'hostel de m'assigner
d'assigner me vint faire mettre a l'assigner
monierat les veillies du duc de guiseur duc et
d'adot preuost a dressa au clerc capitaine
pour lors de la Bastille

Account, in his own handwriting, of Montaigne's arrest and incarceration in the Bastille.

which oft, by reason we are not able to undergo their violence and importunity, bring us to our graves: so that when I am ill, I look upon it as physis, when well, for an absolute deliverance. And here is another particular benefit of my disease; which is, that it most plays its game by itself, and lets me play mine, or else I only want courage to do it; for in its greatest fury, I have endured it ten hours together on horseback; do but endure only, you need no other regiment. The other diseases have more universal obligations, rack all our actions after another kind of manner, disturb our whole order, and to their consideration engage the whole state of life. This only pinches the skin, it leaves the understanding and the will wholly at our own dispose, as also the tongue, hands and feet. It rather

awakes than stupifies you . . . I moreover observe this particular convenience in it, that it is a disease wherein we have little to guess at. We are dispensed from the trouble into which other diseases throw us, by the incertainty of their causes, conditions and progress, a trouble that is infinitely painful. We have no need of consultations and doctoral interpretations, the sense well enough informs us both what it is, and where it is . . . If I find them worse to-morrow, I will provide new remedies and applications. That this is true, I am come to that pass of late, that the least motion forces pure blood out of my reins: and what of that? I stir nevertheless as before, and ride after my hounds with a juvenile ardour; and find that I have very good satisfaction for an accident of that importance, when it costs me no more but a little heaviness and uneasiness in that part. 'Tis some great stone that wastes and consumes the substance of our kidneys, and of my life, which I, by little and little, evacuate. Now if I feel anything to rowl and stir, do not expect that I should trouble myself to consult my pulse, thereby to put myself upon some tormenting prevention. I shall soon enough feel the pain, without making it more and longer, by the disease of fear. Who fears to suffer, does already suffer what he fears. To which may be added, that the doubts and ignorance of those who take upon them to expound the designs of nature and her internal progressions, and the many false prognostics of their art, ought to give us to understand, that her ways are inscrutable and utterly unknown. There is great uncertainty, variety and obscurity, in what she either promises or threatens; old age excepted, which is an undoubted sign of the approach of death . . . There is nothing that ought so much to be recommended to youth, as activity and vigilance. Our life is nothing but motion: I move with great difficulty and am slow in everything, whether in rising, going to bed, or eating. Seven of the clock in the morning is early for me: and where I govern, I never dine before eleven, nor sup till after six. I have formerly attributed the cause of the fevers, and other diseases I have fallen into, to the heaviness that long sleeping had brought upon me, and have ever repented my sleeping again in the morning . . . Sleeping

has taken up a great part of my life, and I yet continue at the age I now am, to sleep eight or nine hours together: I wean myself to my advantage, from this propension to sloth, and am evidently the better for so doing. I find the change a little hard indeed, but in three days 'tis over, and see but few that live with less sleep, when need requires; and that more constantly exercise themselves, nor to whom long journeys are less troublesome. (Of Experience.)

Example is a bright and universal mirror, and in all sciences. If it be a delicious medicine take it, 'tis always so much present good. I will never stick at the name nor the color, if it be pleasant and grateful to the palate; pleasure is one of the chiefest kinds of profit. I have suffered rheumatism, gouty defluxions, relaxations, palpitations of the heart, megrims, and other accidents, to grow old, and die in me a natural death, which I have been rid of when I was half fit to nourish and keep them. They are sooner prevailed upon by courtesy than huffing; we must patiently suffer the laws of our condition, we are born to grow old, to grow weak, and to be sick in despite of all medicine. I see everywhere men tormented with the same disease [as his] and am honored by the fellowship, forasmuch as men of the best quality are most frequently afflicted with it; 'tis a noble and dignified disease. That of such as are pestered with it, few have it to a less degree of pain, and yet they are put to the trouble of a strict diet, and the daily taking of nauseous drugs and potions; whereas I owe my good intervals purely to my good fortune. The fear of this disease, says one, did formerly affright thee, when it was unknown to thee; the cryings and roarings of those that made it worse by their impatience, begot a horror in thee. Consider this chastisement, 'tis very easy in comparison of that of others, and inflicted with a paternal tenderness: do but observe how late it comes. . . If thou tellest me, that it is a dangerous and mortal disease; what others are not? For 'tis a physical cheat to except any, and to say, that they do not go directly to death; what manner is it, if they tend that way by accident, and if they easily slide into the path that leads up to it. But thou dost not die because thou art sick, thou diest because thou art living. Death kills thee with-

out the help of sickness: and in some, sickness has deferred death, who have lived longer by reason that they thought themselves always dying. To which may be added, that as in wounds, so in diseases, some are medicinal and wholesome. The cholic is oft no less long lived than you. We see men with whom it has continued from their infancy even to their extreme old age, and if they had not broke company, it would have afflicted them longer still; you often kill it than it kills you: and though it present you the the image of approaching death, were it not a good office to a man of such an age, to put him in mind of his end? . . . Common necessity will however presently call thee away. Do but consider how artificially and gently she puts thee out of taste with life, and weans thee from the world; not forcing and compelling thee with a tyrannical subjection, like so many other infirmities which you see old men afflicted withal, that hold them in continual torment, and keep them in perpetual and unintermitted pains and dolours; but by advertisements and instructions at several intervals, intermixing long pauses of repose, as it were to give thee leave to meditate and ruminate upon thy lesson at thy own ease and leisure; to give thee means to judge aright, and to assume the resolution of a man of courage, she presents to thee the entire state of thy condition, both in good and evil, and one while a very cheerful, and another an insupportable life, in one and the same way. If thou embracest not death, at least thou shakest hands with it once a month; by which thou hast more cause to hope that it will one day surprise thee without warning. And that being so oft conducted to the water-side, and thinking thyself to be still upon the accustomed terms, thou and thy confidence will at one time or another be unexpectedly wafted over. A man cannot reasonably complain of diseases that fairly divide the time with health. . . . I never fail of finding matter of consolation from some favorable prognostic in my past experience. Custom also makes me hope better for the time to come. Oh! how much does health seem so much the more pleasant to me after so near and continuous sickness. . . . The worst that I see in other diseases is, that they are not so grievous in their

effect, as they are in their issue. A man is a whole year in recovering, and all the while full of weakness and fear. . . . Before they have unmuffled you of a handkerchief, and then of a callot, before they allow you to walk abroad and take the air, to drink wine, and eat melons, 'tis odd you relapse into a few new distempers. (Of Experience.)

My friends oft pity me before I feel the cause in myself; my looking-glass does not fright me, for even in my youth, it has befallen me more than once to have a scurvy complexion, and of ill prognostic, without any great consequence; insomuch, that the physicians, not finding any cause within, answerable to that outward alteration, attributed it to the mind, and some secret passion that tormented me within; but they were deceived. If my body would govern itself as well according to my rule, as my mind does, we should move a little more at our ease. (Of Experience.)

I am of the opinion that this temperature of my soul, has often raised my body from its lapses . . . I had a quartan ague four or five months, that had made me look miserably ill; my mind was always, if not calm, yet pleasant; if the pain be without me, the weakness and languor, do not much afflict me; I see several corporal faintings, that beget a horror in me but to name, which yet I should less fear than a thousand passions and agitations of mind that I see in use. (Of Experience.)

But he can be cruelly sarcastic:

Thus the physician lies preaching to a poor languishing patient to be cheerful, but he would advise him a little more discreetly in bidding him be well. (Of Vanity.)

Experience is properly upon its own dunghill in the subject of physic, where reason wholly gives it place . . . And Plato had reason to say, that to be a right physician, it would be necessary that he who would take it upon him, should first himself have passed through all the diseases he will pretend to cure, and through all the accidents and circumstances whereof he is to judge. For my part, I should put myself into such hands: for the others but guide us like him who paints the sea-rocks and ports upon the cloth, and there makes a figure of a ship to

sail in all security; and put him to it in earnest, he knows not at which end to begin. They make such a description of our maladies, as a town-crier does of a lost horse or dog, such a colour, such a height, such an ear; but bring him to him, and he knows him not for all that. God grant that physic may one day give me some good and visible relief, namely, when I shall cry out in good earnest. (Of Experience.)

The arts that promise to keep our bodies and souls in health, promise a great deal, but withal, there is none that less keep their promise. And in our times, those that make profession of these arts amongst us, less manifest the effects than any other sort of men. One may say of them at the most, that they sell medicinal drugs, but that they are physicians a man cannot say. (Of Experience.)

If your physicians do not think it good for you to sleep, to drink wine, or to eat such and such meats, never trouble yourself, I will find you another that shall not be of his opinion; the diversity of physical arguments and opinions embraces all sorts of methods. I saw a miserable sick person panting and burning for thirst, that he might be cured; and was afterwards laughed at by another physician for his pains, who condemned that advice as prejudicial to him: had he not tormented himself to good purpose? A man of that profession is lately dead of the stone, who had made use of extreme abstinence to contend with his disease. His fellow physicians said, that on the contrary, this abstinence from drink had dried his body up, and baked the gravel in his kidneys. (Of Experience.)

Let us a little permit nature to take her own way; she better understands her own affairs than we. But such a one died, and so shall you, if not of that disease, of another. And how many have not escaped dying, who have their physicians always at their tails? (Of Experience.)

Like most people, like ordinary people, Montaigne, at times, lets his subject run away with him, says more than he means; like many a disgruntled patient he exaggerates what he considers his just case against the doctors. In truth it would be hard not to justify any unfavorable comment as we look back upon their practice. The "ordi-

nary method of cures is carried on at the expense of life, they torment us with caustics, incisions, and amputations of limbs, at the same time interdicting ailments, and exhausting our blood; one step farther and we are cured indeed." (The Custom of the Isle of Cea.) But he had not our vantage ground and in many passages he affirms a favorable disposition to the profession by referring respectfully to its leaders. In his travels he consulted them and in his notes he refers to many eminent physicians. He speaks of Paracelsus, of Sylvius, of Thomas Simon of Toulouse, Felix Plater, Grynaeus (or else his lawyer son), who wrote on medicine and on mathematics. Paracelsus he seems to have sized up rather well as the brilliant revolutionary who may be right but scarcely commends himself as fully reliable. "How long is it that physic has been practiced in the world?" 'Tis said that a newcomer, called Paracelsus, changes and overthrows the whole order of ancient rules, and maintains that till now, it has been of no other use but to kill men. I do believe that he will easily make this good: but I do not think it were wisdom to venture my life in making trial of his own experience." (The Apology.) Sylvius is "an excellent physician of Paris" but we scarcely subscribe to his quoted advice "lest the digestive faculties of the stomach should grow idle it were not amiss once a month to rouse them by this excess," i.e. a drinking bout. Montaigne himself was abstemious.

I cannot nevertheless understand, how a man can extend the pleasure of drinking beyond thirst, and to forgive in his imagination an appetite artificial, and against nature. My stomach would not proceed so far, it has enough to do to deal with what it takes in for necessity. My constitution is, not to care to drink, but as it follows eating, and to wash down my meat, and for that reason my last draught is always the greatest: and seeing that in old age we have our palates furred with phlegms, or depraved by some other ill constitution, the wine tastes

better to us, as the pores are cleaner washed, and laid more open. At least I seldom taste the first glass well. (Of Drunkenness.)

Beer was the one drink that upset him.

I confess that, beer excepted, my appetite accommodates its self indifferently to all sorts of diet. (Of Education of Children.)

DOCTRINES ACCEPTED BY MONTAIGNE

He is after all but the man of his time and accepts the cautery, the incision, the value of bleeding; believes in the theory of humors and many a doctrine long since discredited or of doubtful justification such as maternal impressions.

Magicians are no very good authority for me, but we experimentally see, that women impart the marks of their fancy to the children they carry in their wombs; witness her that was brought to bed of a Moor: and there was presented to Charles the Emperor, and king of Bohemia, a girl from about Pisa, all over-rough and covered with hair, whom her mother said to be so conceived by reason of a picture of St. John Baptist, that hung within the curtains of her bed. It is the same with beasts, witness Jacob's ring-streaked and spotted goats, and sheep, and the hares and partridges that the snow turns white upon the mountains. (Force of Imagination.)

And also in the subjects of which I treat, viz. of our manners and motions, the testimonies and instances I produce, how fabulous soever, provided they are possible, serve as well as the true; whether it has really happened or not, at Rome or at Paris, to Peter or John, it is still within the verge of possibility, and human capacity, which serves me to good use, and supplies me with variety in the things I write. (Force of Imagination.)

He credits the prevailing theory of contagion.

And as an infected body communicates its malady to those that approach, or live near it, as we see in the plague, the smallpox, and sore eyes that run through whole families and cities. (Force of Imagination.)

On the other hand he seems to have some notion of natural immunity.

And yet I have ever found myself very little subject to epidemic diseases, that are caught either by conversing with the sick, or bred by the contagion of the air; I have very well escaped from those of my time, of which there has been several virulent sorts in our cities and armies. (Of Smells.)

MONTAIGNE THE TRAVELER

In 1580 Montaigne, who had for some time been troubled with gout and nephrolithiasis, and had made trial of various French watering places, Cauterets, Eaux Chaudes, etc., set out on an extended journey through Germany, Switzerland and Austria to Italy, hoping to find some relief for his increasingly painful malady at the principal objective point, the famed Baths of Lucca, if not on the way thither. His party included a person who combined the functions of valet and secretary. The commentators on Montaigne have naturally rated the series of somewhat random notes of travel, now written in the first person and now as coming from another, now in French, now in Italian, far below the "Essays" and have even affirmed that the notes do not disclose the author's personality. The story of the journey has no moralizing but the casual comments on the asperities of the road or the comfort of a good inn are intensely interesting to those who want to know all they can about Montaigne, the man. One may be a true philosopher when sitting at ease in the seclusion of an inviolable library and yet display a wholly different spirit when settling accounts with a rapacious landlord, bargaining for post-horses, harrassed by guides or the petty officials at a frontier custom house. Doubtless Montaigne sometimes lost his temper while abroad—everyone does—but most of his reproaches were addressed to himself.

While he was travelling, Montaigne noted with regret three steps which he had neglected to take with regard to his journey.

One was that he had not taken with him a cook, who might have learnt the particular methods of foreign lands, and some day at home have shown proof of his skill. The next was that he had not engaged a German valet, or joined himself to some gentleman of the country, for he felt it very irksome to be always at the mercy of a blockhead of a guide; and the last was that, before setting out, he had neither consulted those books which might have pointed out to him what rare and remarkable sights were to be seen in every place, nor included in his baggage a copy of "Münster" (the "Cosmographia" of Sebastian Münster, one of the earliest guidebooks), "or some similar book."

All things considered, Montaigne's complaints were few. He resented the barbaric German arrogance and independence and at Constance this gave him an excuse to shift from the "Eagle" where he was badly lodged, to the "Pike," where we trust he fared better; but in general he liked German food and German inns and vastly preferred their stoves to open fireplaces.

Their custom of warming the houses by stoves pleased us greatly, and none of our company complained thereof; for, after you have taken in a breath or two of the air which indeed may seem strange on entering a room, you are sensible only of a soft and regular heat. M. de Montaigne, who slept in a room with a stove, was loud in its praises, saying that all night he felt a pleasant moderate warmth. In warming yourself you burn neither your face nor your boots, and are free from the smoke of a French fireplace. At home we put on our warm furred dressing-gowns when we enter our apartments, but here people appear in doublet and bareheaded in the warm rooms, and put on thick garments before going into the air. . . . One of these [stoves] is of porcelain darkened to the colour of bronze, and made in the form of a group of large human figures, which, being heated, warm the room. Moreover, there are certain others, stationed close to the wall, which give out water, this being brought to

them from the fountain in the court below. This is a fine piece of work.

Their warm but light feather coverlets were a source of huge comfort. He thought the national boastfulness and quick temper were offset by honesty.

A constant cause of trouble was the heating of his room. Charges for a fire were high and even when the service was well paid for, Montaigne's requirements in this particular—he was a real *frileux*—seemed to cause grumbling everywhere. He had a horror of chilling from night air and the dew. "Arrived at Rovere very late, after travelling fifteen miles. Never until now did we journey in the dewfall, so carefully had we laid out our time on the road." The most serious grievance was the unsatisfactoriness of the beds in the average hostelry. He advised intending travelers to take their own mattresses with them and yet at Rovigo he notes that Italian mattresses are softer and smoother than French ones. He resented the absence at Bagni di Lucca of glass, even of linen shutters in the windows when every house in Switzerland, even the poorest, had glass windows. And there was no chimney in his room! He mentions at least *two* hotels as the worst in the country but his verdict on Italian inns was that they were in general good and often excellent.

There is something truly sublime in the picture of this elderly invalid incessantly tortured by acute pain, rising after a sleepless night to ride 18, 20 even 30 miles on horseback, supported by only a feeble hope of finding medical relief, but animated by a consuming interest in the affairs of men and in every novelty to be seen in a foreign land.

If we cannot share his delight in every sort of mechanical contrivance—the water-works at Constance and Augsburg, the concealed *jeux d'eau* in the gardens of Italian noblemen, which sprayed unsuspecting visitors, the provisions for drainage near Lucca which aroused in him an almost

childish delight—we recognize his courage, his heroism in finding distraction for himself in such observations. As long as his lively intellect was stimulated or his fancy gratified by these things he could forget himself. It has been objected that he has so few remarks to make on the glories of Italian art or the marvelous monuments of antiquity and that the most beautiful scenery never drew from him suitable expressions of praise; but there is ample evidence that he appreciated all this. There can be no question that Montaigne enjoyed everything enjoyable; but he was making notes of a journey not writing a guide-book or a diary, and scenery may have been too provocative of reverie and introspection to be altogether pleasant for a man in the throes of an incurable disease. At all events he does not dilate on his afflictions. They are mentioned as incidents of the day and no more, often interlarded between matters wholly foreign to himself and relating to something that happened days before.

If there was a single side of himself which he did not throw open to the public gaze it was the strictly emotional or sentimental side. But Montaigne was not a materialist, or beyond the reach of subtle and mysterious influences, and he loved beauty.

There is no heart so effeminate, that the rattle and sound of our drums and trumpets will not enflame with courage; nor so sullen, that the harmony of our music will not rouse and cheer; nor so stubborn a soul, that will not

feel itself struck with some reverence, in considering the gloomy vastness of our churches, the variety of ornaments, and order of our ceremonies, and to hear the solemn music of our organs, and the grace and devout harmony of our voices. (The Apology.)

In a personal notebook of travel there was certainly little occasion to rhapsodize over things universally known. On the other hand he is circumstantial about all that was striking in out-of-the-way places. Of the fountains at Bagnaia he says that the architect has touched "the highest point of art, beauty and grace." He waxes

expansive over the superb country home of the Farnese family at Caprarola. The portrait of Pico della Mirandola which he saw at Urbino is described in detail. His notes do actually abound in appreciative allusions to all natural beauty.

He delays leav-

ing Ancona "to enjoy the beautiful prospect of the town and its situation." The site of Empoli is "most lovely." He was charmed by the scenery along the Adriatic coast. The vineyards and chestnut groves that cover the hills of Tuscany gave him keen delight. On the Sunday after getting word of his call to the mayoralty of Bordeaux he took a ride along the heights of Granaia and as he gazed on the countryside stretched at his feet pronounced it "the fairest and most fertile that the world could show." He paid full tribute to the beauties of the landscape near the famous falls of Terni. Lucca, of course, he loved and everything connected with it—city walls, palaces,



The Caryatids, Villa Farnese, Caprarola.

people. "I never saw a town in a more pleasant site, surrounded as it is by a most beautiful plain two leagues in extent, and beyond this the lovely mountains and hills, which for the most part are cultivated to the tops." If he made the wonderful journey over the Mont Cenis Pass without a word about the grandeur of the scene we must remember that he was making a forced march in obedience to royal mandate, doubtless absorbed in thoughts of the duties he was about to assume, sick and suffering, chilled by the wintry weather. On the Puy de Dôme he passed a stone. "On Monday the 20th I started in the morning, and on the heights of Puy de Dôme I passed a stone, somewhat broad and flat. I had felt it all the morning and even the day before with a slight pain in the kidneys. It was neither very hard nor very soft."

In everything that related to the resorts visited and the use of their healing waters he is most minute and particular, telling just what he was expected to do and what he actually did. As a rational, highly intelligent patient who had profited little by the physicians but learned much by experience regarding what was good for him and what was not, he departed widely from conventional practices, perhaps to his advantage but certainly to the great astonishment of his fellow sufferers. On the other hand, in all his social relations while abroad Montaigne prided himself on being very correct and carefully conformed to local usage. He

is everywhere and on all occasions a gentleman, though mortified occasionally at not getting the ceremonious reception he expected; disgusted at times by the bibulousness of Germans and the arrogance that developed with their potations; ashamed (as who has not been) of the behavior of some of his fellow countrymen abroad.

He tried to be simple, friendly, unobtrusive, wherever he went. He did not display that blatant pride in home institutions seen in the modern American, who confounds boastfulness with patriotism; he avoided the insular aloofness of the English traveler, ever fearful of embarrassing and compromising consequences from making chance acquaintances; he was not, despite his passionate admiration for Paris, convinced that it was the center of the intellectual world nor that France was the only model for all



Stairway and fountains, Villa Lante, Bagnaia.

things good and beautiful.

At Padua and elsewhere he notes how many Frenchmen come to Italy to learn fencing and horsemanship and cheerfully concedes the superiority of the Italians in these accomplishments and that Italian horses are the most perfectly schooled of all. His statement that more fine horses and carriages are to be seen in Rome than in any other city still holds true.

Eager everywhere to conform to local customs he changes the hours of his repasts, and in the spirit of St. Paul eats what is set before him, only complaining when the wine is sophisticated or new. To the son of a

wine merchant, and much more to a sick man, this was a matter of moment. It is only because of his physical condition that he makes so many references to food and lodging. He was no gourmand, scarcely a gourmet. He frequently went to bed supperless or had only a little toast, and habitually started his all-day horseback rides sustained only by a breakfast of bread and such fruit as he could obtain by the roadside. "Repletion hath in my case a cruelly sluggish effect on activity." He is equally at home when banqueting with a cardinal or dancing with peasants. He visits impartially the Protestant church and the Catholic cathedral, conversing alike with Calvinist and Jesuit to compare what they have to say and form his own independent judgment.

Those of us who have lived abroad know how easily the globe-trotter forgets the restraints and standards of home and yields to temptations grown insidious through the piquancy of a foreign flavor. Montaigne had an eye for the women. He loved a pretty face and records his disappointment when some town like Fano, famous for its beautiful women, has only ugly ones to show him, a good man of the place informing him that the time for that had long gone by. Venice too disappointed him in this respect. But at Ancona, at any rate, he found the women "for the most part good looking."

The inevitable effect of health on mental outlook is clear to the reader though not always patent to the author. We forgive the harsh and disparaging tone with which he refers to Florence when we discover that he passed a stone while there and that his bed was infested with vermin. What mental complacency could be expected from a man who "passed 2 stones and a large amount of gravel" even though "without perceiving anything more than a slight pain in the lower abdomen;" who was kept awake by vermin and then did enough sight-seeing to exhaust the most indefatigable modern. He noted the Grand Duke's stables and menagery; visited one of the Ducal palaces

where "certain men were engaged in counterfeiting eastern jewels and working in crystal, for this prince is somewhat given to alchemy and the mechanic arts;" finally he made the round of the churches. No wonder he cries out "in this city no seemly diversion was to be had, neither in arms nor horsemanship nor letters." Yet the "Florentine Academy" was founded in 1540 and the year after this visit the Accademia della Crusca so that it must have boasted a few choice spirits.

And there was Bianca Capello. Montaigne dined with her and the Grand Duke. "His wife was seated in the place of honour, and the duke below her, then the sister-in-law of the duchess, and then her brother the husband of the aforesaid. According to the Italian taste the duchess is handsome, with an agreeable and inspiring face, full bust, and a bosom displaying itself as it may." M. de Montaigne fully recognised in her the charm by which she had been able to "cajole this prince and to insure his devotion for a long time." At a subsequent visit he makes the amende honorable and admits that he can see a reason for calling Florence "the beautiful." It seems remarkable, but we must believe him when he says that at only two places in Italy was he annoyed by vermin in his bed—Florence and Viterbo. But Montaigne was wonderful in the way he triumphed over the frailties of the body. We note that the "Falcone," where he put up in Pavia, was the worst in Italy. There were no mattresses on the beds and a separate charge was made for firewood. But even when suffering he could be fair. "Susa is a large, populous town. I was here taken with a violent pain in the right knee, a pain which I had felt for several days, and which went on from bad to worse. The inns are better than in other parts of Italy; good wine, bad bread, plenty to eat, such is the rule everywhere in Savoy." His one universal, sweeping condemnation is not exactly a criminal charge. "In all Italy I have never found a barber who could shave

me or cut my hair properly." Mark Twain made the same complaint about France!

How well he realized the danger of having judgment warped by feeling is shown in the following passages.

It is certain that our apprehensions, our judgment, and the faculties of the soul in general, suffer according to the movements and alterations of the body; which alterations are continual. Are not our wits more spritely, our memories more prompt and quick, and our meditations more lively in health, than in sickness? Do not joy and gayety make us receive subjects that present themselves to our souls, quite otherwise than care and melancholy? Do you believe that Catullus his verses, or those of Sappho please an old doting miser, as they do a vigorous and amorous young man? . . . For it is most certain that men's judgments are sometimes more prone to condemnation, more sharp and severe; and at others more facile, easy, and inclined to excuse. He that carries with him from his house the pain of the gout, jealousy or theft by his man, having his whole soul possessed with grief and anger, it is not to be doubted but that his judgment will lean this way . . . 'Tis not only fevers, debauches and great accidents that overthrow our judgments; the least things in the world will do it. We are not to doubt, though we are not sensible of it, but that if a continued fever can overwhelm the soul, a tertian will in some proportionate measure alter it. If an apoplexy can stupify, and totally extinguish the sight of our understanding, we are not to doubt but that a great cold will dazzle it. And consequently there is hardly one single hour in a man's whole life, wherein our judgment is in its due place and right condition, our bodies being subject to so many continual mutations, and stuffed with so many several sorts of springs and devices, that I believe physicians know how hard it is, but that there must be always some one or other out of order . . . Dare hardly to tell the vanity and weakness I find in myself . . . If health and a fair day smile upon me, I am a very honest and good natured man, if a corn trouble my toe, I am sullen, out of humor, and not to be seen. The same pace of a horse seems to me one while hard, and another easy, and the same way one

while shorter, and another more long; and the same form, one while more, and another less taking. (The Apology.)

Montaigne took a passionate delight in travel. His secretary said: "I verily believe that, if he had been alone with his own following, M. de Montaigne would rather have gone to Cracow or to Greece by land than have turned towards Italy," whither he was bound for his health.

He took great pleasure in his visits to strange countries, finding therein forgetfulness of his age and of his ill-health, but he could never win over the rest of the company to this view, each one of them being anxious to have done with travel and to return. He was ever wont to say that, after an uneasy night, he would rise eager and lively when he remembered he was about to sally forth to see some fresh town or district. Never did I see him less subject to fatigue or less querulous of his ailments; so full of spirit both on the road and at his lodgings; so appreciative of everything he saw, and eager for conversation with strangers, indeed I believe that his habit drew off his thoughts from his infirmities. When the others complained to him of his practice of leading the party over indirect and winding roads, often returning to the spot whence they had set out (which he would often do when he heard report of something worth seeing, or when he saw reason for varying his plan of travel), he would reply that, for his own part, he never set forth for any place other than that in which he might at present find himself; and that it was impossible he should miss or go aside from his route because this route always lay where places unfamiliar to him were to be seen; and that, provided he did not fare the same road twice over, or see one place a second time, he never considered that he had failed one jot in his original purpose. As to Rome, which other people might easily see, he was less fain to visit it than other places, because it was well known to every one, and moreover every lackey was ready to give news of Florence and Ferrara. He said that he seemed to be in like case to one who reads some delightful story or good book, and dreads to turn the last page. The pleasure of travel was to him so keen, that

he hated the sight of the place where he ought rightly to stop and rest; moreover, he devised several projects of travelling exactly as the mood might seize him, supposing that he should separate from his present companions.

If we follow Montaigne on his pilgrimage we shall glean interesting information about places and people and many an odd story of medical import. He tells us that at Vitry-le-François a woman named Mary had just been hanged for going about disguised as a man, marrying, and resorting to unlawful appliances in order to sustain the part. Another Mary in this town, distinguished as "Bearded Mary," passed for a girl until in leaping a ditch "the distinctive signs of manhood showed themselves." Paré recites the same story but puts the age when the transformation took place at fifteen instead of twenty-two and says that when the youth went home weeping and told his mother that "his bowels had come out of his belly," the doctors and surgeons were called in and verified his true sex. Mary's name was changed to Germain and male attire ordered by the bishop.

A WELL-CONDUCTED HEALTH RESORT

Four leagues beyond Bar-le-Duc the first interruption due to sickness occurred. "M. de Montaigne was obliged to stop on account of his colic, which also occasioned him to abandon the desire he had formed of seeing Toul, Metz, Nancy, Jouinville, and St. Disier, towns scattered along this route, in order to get as soon as possible to Plommieres." At Plombières, Montaigne detected in one spring a taste of iron, in the other a taste of alum. The patrons of the place drank sparingly of the waters and only after a purge, but bathed two or three times a day. Some took their meals, were cupped and even scarified while in the bath. Our traveler excited comment by only bathing every other day and at four in the afternoon and by staying in only an hour;

but he drank copiously at seven in the morning. When he bathed he went without his supper. He notes that here people were cured of pimples and ulcers. In marked contrast to the earlier practices in the bath houses of central Europe, the proprieties seem to have been rigidly observed. It was "reckoned indecent for men to bathe naked or with less clothing than a little jacket,



BRONZINO'S portrait of BIANCA CAPELLO in the Pitti Gallery.

or for women to wear less than a chemise." The strictest rules were in force forbidding all "prostitutes and immodest women to enter the baths or to be found within five hundred paces of the same under penalty of a whipping at the four corners of the town." Any householders receiving or concealing such undesirable patrons were liable to fine and imprisonment.

The same penalty will fall on those who shall use any lascivious or immodest discourse to any ladies, or damsels, or other women and girls who may be visiting the baths, or touch them in a manner unbecoming, or enter or quit the baths in ribald fashion, contrary to public decency. And because by the boon of the baths afore-

named God and nature have afforded us cure and relief in many cases, and because decent cleanliness and purity are necessary in order to keep off the many contagions and infections which might well engender in such a place, it is expressly commanded to the governor of these baths to take the utmost care, and to inspect the persons of those who frequent the same by day and by night; to make them keep decency and silence during the night, making no noise, nor scandal, nor horse-play. And if any person will not render obedience the governor shall forthwith carry the affair before the magistrate, so that an exemplary punishment may be given. Beyond this it is prohibited to all persons coming from infected places to repair to Plommiers under the pain of death.

Montaigne "found the water easy to drink, and the effects of the same all he could wish."

Appetite, digestion, and sleep were alike good, and his general health suffered no injury from these waters. On the sixth day he was seized with a colic, more violent than his ordinary attacks, and with pain on the right side, where he had never hitherto been troubled, save once in the course of a very trifling attack at Arsac. This seizure lasted four hours, and while it was on him he felt plainly the working and the movement of the stone in the urethra and the lower part of the stomach. The first two days he passed two small stones from the bladder, and gravel occasionally afterwards. When he left these baths he deemed that he had still in his bladder both the stone of this attack of colic, and certain other small ones of which he had felt the downward passage. He judged the qualities of these waters, with regard to his own case, to be much the same as those of the high spring, Banieres, where there is a bath. He found the temperature of the bath very mild, indeed, children of six months or a year old are wont to sprawl about therein.

INCIDENTS OF THE ROAD

At Bâle, Montaigne dined with Felix Plater, the first physician to report a death from status lymphaticus and to attempt a serious working classification of diseases.

At the time of the visit, Plater was occupying a fine house he had built for himself, painted and decorated in the French style. Montaigne was interested in the book of simples which he was making. Instead of illustrations the specimens themselves were inserted, glued to the pages with great care and skill, to show leaves, fibres, etc. Some of them had been prepared as much as twenty years before. Both in Plater's house and in the public school of the city there were several complete human skeletons.

Our next quotation is characteristic of the notes, several items of widely different nature being embodied in one illuminating paragraph:

Certain of the people lamented to M. de Montaigne over the dissolute carriage of the women, and the prevalent drunkenness of the city. We witnessed an operation for rupture done by a surgeon on the child of a poor man, who was very roughly handled by the operator, and likewise saw the very fine public library overlooking the river in a pleasant situation.

Baden must have been extremely popular. The hotel where Montaigne put up lodged 175 persons and by means of its 11 kitchens fed 300 every day.

Ladies who are fain to take their bath with daintiness and decency can repair to Baden with confidence, for they will be alone in the bath, which is like an elegant cabinet, light, with glazed windows, painted panelling, and clean flooring. Everywhere are chairs and small tables for reading or gaming while in the bath. The bather may empty and fill the bath as often as he likes, and will find a chamber adjoining . . .

The water when drunk tastes rather flat and soft, like water heated up, and there is a smell of sulphur about it, and a certain prickling flavour of salt. Amongst the people of the place it is chiefly used in the bath, in which they subject themselves also to cupping and bleeding, so that I have at times seen the water in the two public baths the colour of blood. Those who drink it by habit take a glass or two at the most. The guests as a rule stay six or seven weeks, and some or other frequent the baths all through

the summer. No country sends so many visitors as Germany, from whence come great crowds . . . The water is less clear than that of the other springs we have seen, and when drawn from the spring it shows certain minute fibers. Moreover, it contains no sparkling bubbles like other sulphurous waters when the glass is filled . . .

M. de Montaigne took some of it on the Monday morning after we arrived, seven small glasses, and on the next day five large glasses, amounting to ten of the aforesaid. On this same day, Tuesday, at nine in the morning, while the others were at table, he took a bath and fell into a heavy sweat in bed afterwards, having stayed in the bath only half an hour. The people of the country, who stay all day in the bath playing and drinking, stand only up to the middle in water, but M. de Montaigne lay full length and was covered to the neck . . . On the Thursday M. de Montaigne drank the same quantity of water, which acted well and rid him of a small amount of gravel. Still, he found these waters more powerful than any others which he had ever tried—whether from the strength of the water itself or from the present habit of his body—and accordingly he drank them more sparingly.

On Friday, October 7th, at seven in the morning, after breakfast, we quitted Baden; and, before we set out, M. de Montaigne drank the same quantity of the water as he had taken on five previous occasions. With regard to the operation of the same, concerning which he was more sanguine than he was in the case of any other bath he had visited (both as to the bathing and the drinking), he was free in his praises of these baths beyond all the rest, not only because the place itself, and the baths and the private apartments, are comfortably and conveniently managed, but also because in all apartments, visitors are always able to go to their own rooms without passing through the rooms of other people. Moreover, persons of small means may find quarters to suit them quite as easily as those who are rich.

Journeying along, Montaigne remarks that "there are many lepers in this country, the highways being full of them." The secretary records that, at Lindau:

M. de Montaigne made trial of the feather coverlets, such as they use in bed, and was full of praise thereof, finding them light and warm at the same time. It was a saying of his that people of fastidious taste had more occasion to complain, when travelling, of their bed furniture than of aught else, and he commended those who carried a mattress or curtains amongst the baggage when visiting strange countries.

At Stertzing, in the Tyrol, the secretary relates that—

M. de Montaigne suffered this night from colic for two or three hours, and very sharply, to judge from what he said next morning. Then indeed, when he rose from bed, he passed a stone of medium size which crumbled easily: outside it was yellowish, and when broken showed white in the middle. He had taken cold the previous day and found himself ailing, but he had not suffered from colic since Plommieres. This seizure partially removed the fear he felt that at Plommieres some gravel had descended into the bladder without passing therefrom, and that certain matter, there arrested, was collecting and consolidating. Now, seeing what had happened, he felt he might reasonably infer that, if there were indeed other particles, they would have joined themselves to the stone he had just passed. On the way he complained of pain in his loins, and now he declared he had prolonged the day's journey simply on this account, deeming that he would find greater ease on horseback than elsewhere. At this place he called for the schoolmaster to converse with him in Latin, but the fellow was a fool from whom he could get no information as to the country.

A WAYFARER'S WOES

Reaching Verona he had to show the bill of health issued to the party at Trent. "Not that there was any talk of danger of the plague, but this is always done by custom or by way of tricking wayfarers out of a few coins." Montaigne visited the various churches but saw nothing worthy of note "either in the ornaments or in the beauty of the women present," but did observe "where the Germans have left divers marks of their presence."

From Verona he rode 30 miles at a stretch, a rather unusual day's march, to Vicenza where he visited the house of the Jesuits and "saw their store of distilled water, for the sale of which they keep a shop . . . They make, likewise, medicinal draughts for all sorts of maladies." Here begin the complaints about wine. His secretary says:

At this place we failed to get old wine, which troubled me greatly on account of M. de Montaigne's colic; for he had to drink thick wine instead of the good wine we had got up to this time. We thought of the German wines with regret, though they are for the most part spiced and diverse in their odour, and though they have a liquorish flavour like sage; indeed, they call one of them *vin de sauge*, which is pleasant enough when the palate is wonted thereto, seeing that it is also good and generous.

Further on, at Ferrara, the wine was both thick and new, a combination of abominations which made Montaigne apprehensive of an attack of colic. The Italians have always been noted for taking less pains with their wines than the French or Germans but sophistication was not peculiar to them. The prejudice against new wine is at least as old as the "Regimen Sanitatis." (*Vinum sit clarumque vetus, subtile, maturum.*) During the vintage in Italy those who have toiled in the vineyards and at the presses may have all the new wine they wish to ask for and advice against it without the asking. On the second visit to Florence, Montaigne observes:

They have a fashion here of putting ice in the wine-cups, but of this I took very little,

being uneasy in my body and troubled with pain in the side, besides passing an incredible quantity of gravel. My head still troubled me, and I could not get rid of the sensation of dulness and a certain indefinable heaviness over the brow, the cheeks, the teeth, the nose, and all parts. I imagined this discomfort arose, from drinking the sweet, heady wines of the country, because my headache returned after I had drunk heartily of the Trebisiano. I must have been inflamed through travelling in the summer heat, and it needed a great quantity of the wine to quench my thirst on account of its sweetness. . .

At Urbino the wine was adulterated. At Carrara it was treated with white of egg and clarified so as to look like old wine but by this process it merely acquired an unnatural taste. The wines of Lucca were passable, strong and well matured but not very palatable. At the Baths the white wines were sour and crude.

Montaigne hated adulteration of all kinds. At the Baths of Lucca he discovered that even the mineral water was being fraudulently disposed of.

I made to the deputy-judge a suggestion, which I deemed only reasonable, that the government should make certain regulations—of which I gave him an example, easy to carry out, and admirably fitted for the end in view—to be enforced with regard to the vast crowd of traders who resort hither to carry away the water of these springs into all parts of Italy. These regulations would oblige them to show a voucher for the genuine character of the water they retail, and thus put an end to knavery, an instance of which I gave him from my own experience.

(To be Concluded)

WILLIAM RAWLINS BEAUMONT, F. R. C. S. (ENG.)

(1803-1875)

By M. CHARLTON

TORONTO, CAN.

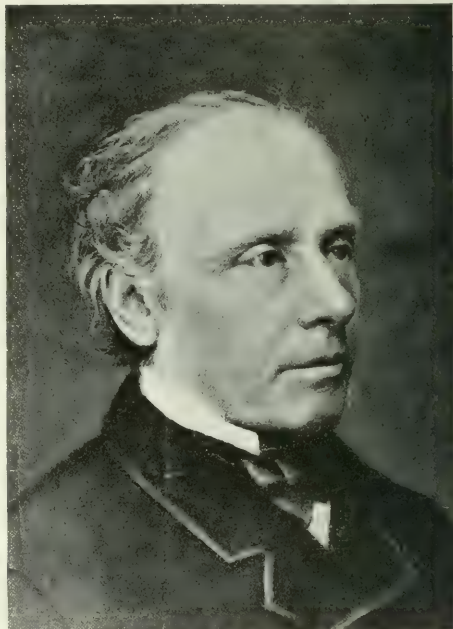
WILLIAM BEAUMONT was born in Beaumont Street, Marylebone, London, England, in 1803. The family originally came from France, and settled in England in the fourteenth century.

After receiving his education in various private schools Beaumont became a student at St. Bartholomew's Hospital, London. This famous and ancient hospital with its old world atmosphere has ever exercised an extraordinary charm over its students. At the time Beaumont entered, John Abernethy, the ardent pupil of Hunter and his immediate successor in London, was then attracting under his inspiring leadership a great number of students to the hospital. The theatre was crowded to its capacity on the day Abernethy was to lecture. He never entered the place without being cheered, the applause rising and dying away the instant he began to speak—always of something new and worth listening to and delivered in his own inimitable and vigorous style.

Beaumont had the singular good fortune to attract the attention of this great man. Abernethy seems to have noticed him almost on his first appearance before him and in a very short time Beaumont was appointed his dresser. Later in speaking of his pupil, Abernethy said: "He did very assiduously prosecute his studies for more than an ordinary length of time." This close association with his teacher made a lasting impression on Beaumont, and the friendship thus early formed was never broken. He also studied with such distinguished men as Sir Astley Cooper, Lawrence, May and Hall.

From St. Bartholomew's, Beaumont went

to Paris, where he remained for ten months. At that time Paris offered to medical students many inducements, especially in the subjects of anatomy and surgery. Amussat was then lecturing to crowded gatherings of savants, many of whom came



WILLIAM RAWLINS BEAUMONT

from foreign countries to attend his lectures. Sir Astley Cooper was one of those and in his diary kept by him during a tour on the continent in 1834, he writes: "At three o'clock went to M. Amussat. . . He is a man of merit, industrious, and anxious for the truth." Beaumont spent a great deal of his time with this famous teacher, for not only was Amussat a renowned lecturer, but he was also a mechanical genius, and in the shops of the instrument makers

many surgical instruments were made by him. Beaumont while visiting these shops, became vastly interested, for he himself was an inventor of no mean ability. Consequently there grew up between pupil and teacher a strong bond of friendship. Amussat said of him—"Un zèle et un aptitude rare."

From Paris Beaumont went to the University of Brussels for a short time. He then returned to England, and on December 23, 1826 he passed the Royal College of Surgeons and became a Fellow in 1836. Beaumont, carrying on his work of improving instruments, invented in 1836, an instrument for suturing in the operation for cleft palate. Sir James Paget mentions having seen this instrument used.

I believe that few of our profession have equalled him in inventive power, and that few inventors of any class have proceeded more directly to that simplicity which is essential to excellence. Of one of his instruments, however—that for the making of deep sutures—more deserves to be said. I remember seeing it used where it was first invented in 1837. Mr. Beaumont brought it to St. Bartholomew's and Mr. Lawrence used it for a cleft palate, and it answered well, as it did in many other instances.

The Lancet expressed the opinion that "this instrument was destined to make an epoch in the world's history," and so it did for it served as the model for the Singer Sewing Machine Company. It was greatly admired by Brunel, the celebrated engineer. Beaumont about this time made an instrument for tying polypi, a sutrum, and many others of surgical value. Beaumont's valuable collection of casts and instruments may still be seen at the Royal College of Surgeons, England, but alas! all the instruments made by him in Canada and given to the General Hospital are lost.

Beaumont practised for some time in London, where he was surgeon to the Islington Infirmary. But he was not anxious

to settle in London. Like so many of the surgeons of that day, he was anxious to enter the Army Medical Service. Abernethy at once interested himself on his behalf; he spoke to Sir James McGregor, the Director-General and other influential persons. The army, however, was not to have the advantage of his services, for, yielding to the persuasion of a friend, Dr. Spear, who was on the point of sailing for Canada, Beaumont suddenly made up his mind to accompany him.

He arrived in Canada in 1841, and took up his residence in Toronto. He found a vast difference in his surroundings and for some time lamented his old associations. But the glamour of the new world soon overcame his homesickness and he settled down to his medical duties. And after that he was known to his old friends as "Beaumont of Canada."

Medical education in Toronto was at this period being zealously guarded and advanced by a medical board, appointed by the Governor-General. This Board inspected the diplomas of all qualified practitioners and examined students who had served an indenture. It met quarterly for the purpose of examining those desirous of practising medicine, and from their records one can find that quite a number were rejected by the Board. The early physicians of Toronto were, as a rule, men of good education. Many of them had come to Canada in the Army Medical Service, and had retired and settled at Toronto, and around the Niagara District. But it was not until 1843 that the first Medical School was organized—at the medical department of King's College (now the University of Toronto). Beaumont was appointed professor of surgery which he held for ten years and was dean of the faculty of medicine when it was abolished.

From 1843 Beaumont held many important positions. His reputation as a surgeon was soon established throughout Canada and the United States. Dr. Richardson, who

was one of Beaumont's students, in his reminiscences says:

Professor Beaumont had been selected and recommended by leading surgeons in London, as eminently fitted for his position. He was an accomplished anatomist; was perfectly versed in surgery, most painstaking and correct in diagnosis, most skilful in the use of the knife, engrossed in his subject and capable of communicating knowledge. He was the ideal of a surgeon. As a man he was most estimable, singularly polite, as gentle as a woman, neat in person and possessed of a charity which thinketh no evil. He charmed all who came in contact with him. Professor Beaumont's course of lectures were composed with great care.

Dr. Conniff, another of his students, said: "His work at the Toronto General Hospital, where he delivered the clinical lectures in surgery, was worthy of his great teacher Abernethy."

In 1863 he succeeded Dr. Widmer, as consulting surgeon to the General Hospital. During the Fenian Raid of 1866, he had charge of the hospital at Port Colborne.

Beaumont was the author of numerous essays and addresses including—"The Treatment of Fractures of the Leg and Forearm by Plaster of Paris," 1831; "On Polypi," 1838; "Tumour of the Lower Jaw," 1850; "Clinical Lectures on Traumatic Carotid Aneurysms," 1854; "The Several Forms of Lithotomy," 1857; "A Deeply Penetrating Wound through the Orbit (five and a half inches deep) with Recovery," 1862.

Most of his writings were published in *The Lancet*.

No one looking at his portrait can doubt the character of the man. His is the face of a scholar who was gifted with lofty inspirations and whose record shows also one who could not pass through life without much suffering—it is there written on his face—a strange sadness which looks forth from his kindly eyes. And one gathers from his favourite maxim: "Rich is he who needs neither beg nor borrow" that he was indifferent to wealth.

His home, which was on the North side of Wellington Street, near York Street, was the center of many a social gathering. Here his friends loved to assemble and discuss eagerly matters of state, art and science. He made an ideal host; always courteous he yet advanced his own opinions with such great dignity that he was listened to with great attention and interest.

His last days were clouded by much suffering. In 1865, ten years before his death, he lost the sight of his left eye—the right eye being also affected. Until 1873, he was able to continue his surgical operations, where his unerring hand and great experience could still be applied with his impaired sight, but in that year, he lost the sight of his right eye also. From this time, deprived of the ability to practice his profession, which was all in all to him in life, he withdrew from his old associations, and lived in seclusion until his death on October 13, 1875.



EDITORIAL NOTES

DR. STREETER'S EXHIBIT OF EARLY MEDICAL TEXTS

Those who attended the meeting at Boston on June 6—10, 1921 had an opportunity to view and study a most interesting exhibit of early medical literature which Dr. Edward C. Streeter had gathered and arranged for the occasion.

Many will recall the interesting Vesalian exhibit which was shown by Streeter and Cushing at an American Medical Association Meeting in Atlantic City some years ago. Dr. Streeter's latest effort was on a larger scale and was deservedly successful. Books and tracts were shown, more or less chronologically arranged, from the earliest printed editions of Hippocrates, Galen, and the Arabists down to the end of the eighteenth century, along with a fourteenth century manuscript of the surgery of Guy de Chauliac, and an especially valuable collection of tracts on syphilis and the plague.

The collection was largely from Dr. Streeter's own library with some volumes from the Boston Medical Library. The catalogue which serves as a guide to these treasures deserves special mention. Occupying forty-two pages with excellent facsimiles, the notes on the various objects are most excellent, giving in succinct form valuable information on the author and the book, and containing sufficient bibliographic information to make this catalogue one of those which every collector of ancient medical literature will wish as an addendum to his library.

Exhibits such as this not only increase the interest in medical history and literature but are an outward and visible sign of the extent to which such interest has already developed in the United States.

The profession owes a debt of gratitude to Dr. Streeter for this wonderful opportunity of seeing some of the treasures available in America for study of this kind.

MONUMENT TO CRAWFORD W. LONG

At the annual commencement exercises of the University of Georgia on June 14, 1921, a memorial was unveiled to the memory of Crawford W. Long, who first used ether as an anaesthetic. The memorial, a stone shaft bearing a bronze plaque, is the gift of Dr. Joseph Jacobs, of Atlanta, a former pupil of Long's and an enthusiastic advocate of his claims in the ether controversy. The ceremony was made especially interesting by the presence of Mrs. H. H. Carlton, the patient at whose bedside Dr. Long was officiating at the moment when he was stricken with the apoplectic stroke from which he died. Two daughters of Dr. Long were also present, Miss Long and Mrs. Eugenia Harper.

Crawford W. Long was born in Danielsville, Georgia, on November 1, 1815. He received the degree of M.D. from the University of Pennsylvania in 1839. After spending a year in a hospital in New York he settled in practice at Jefferson, Jackson County, Georgia. At this period an itinerant

lecturer on chemistry passed through the town. Part of his entertainment consisted in making some of his audience inhale nitrous oxide to the point of intoxication. Some young men who had heard of the pleasure and amusement derived from the experiment asked Long to try it on them. He told them he had no nitrous oxide but that he could produce the same result with ether. During January, 1842, several "ether frolics" were held in Long's office, in the course of which those who were staggering about, drunk with the fumes, had on occasions injured themselves but had experienced no pain. Long remarked this, and determined to use ether to allay pain in a surgical operation as soon as the opportunity should present itself. The first patient upon whom he used it, James Venables, took an affidavit a few years later that in the spring of 1842 Long at two separate sittings removed two cystic tumors from his neck while he was under the influence of inhaled ether administered by Long to allay the pain. Long afterwards produced certificates from other patients upon whom he had operated in the same year after giving them ether. Long did not publish his discovery until after Morton had set the world on fire by publicly demonstrating the value of ether as an anaesthetic on October 16, 1846, at the Massachusetts General Hospital. Long states his reasons for not publishing his procedure sooner as follows:

I was anxious, before making my publication, to try etherization in a sufficient number of cases to fully satisfy my mind that anaesthesia was not the effect of imagination or owing to any peculiar insusceptibility to pain in the persons experimented on.

There can be no doubt that Long first used ether as an anaesthetic, just as there is no doubt that W. T. G. Morton, working independently, discovered its practical value in surgery and first publicly demonstrated it.

The terms "anaesthesia" and "anaesthetic" were first suggested by Dr. Oliver Wendell Holmes in a letter to Morton dated November 21, 1846.

HERMANN LUDWIG FERDINAND VON HELMHOLTZ

August 31, 1921 marked the centenary of the birth of von Helmholtz, one of the few great men whose universality has made his name immortal in several distinct fields.

Americans have a special interest in his personality because on his mother's side he was a direct descendant of William Penn. His father, a teacher of philology and philosophy in the Gymnasium at Potsdam, was too poor to allow him to follow his bent and devote himself to pure science, consequently he obtained a scholarship in the Medico-Chirurgical, Friedrich Wilhelm Institute in Berlin, by which he obtained his medical education free, on the condition that he would become a surgeon in the Prussian Army on graduating.

Helmholtz's first important discovery was announced to the world in his inaugural thesis, in 1842, when he was but twenty-one years old. In it he demonstrated that nerve fibers arose from the nerve cells located in the ganglia.

In the five years subsequent to his graduation, Helmholtz lived in Berlin. Part of this period he was assistant physician in La Charité Hospital, and another portion he passed at Potsdam as assistant surgeon to the regiment of the Red Hussars.

Through the influence of Alexander von Humboldt he was finally relieved from his duties in the army and became Assistant in the Anatomical Museum, Lecturer on Anatomy to the Academy of Arts, and Extraordinary Professor of Physiology to the Albert University.

In 1843 he made some important studies on fermentation, showing that the living



HERMANN VON HELMHOLTZ

Engraving from 288



yeast organisms themselves were necessary for the production of fermentation, and that it was not, as held by Liebig, due to some substances produced by them.

In 1844 Helmholtz commenced the investigations on animal heat which ultimately led to the development of his theory of the conservation of energy, which he first gave to the world in 1847, one of the most wonderful contributions to human knowledge ever made by mathematical and physical science.

In 1849 Helmholtz was appointed Professor of Physiology and General Pathology in the University of Königsberg. There he investigated and determined by a series of most interesting experiments the rates of motion of the nerve impulses in the motor and sensory nerves, and made the discovery of the ophthalmoscope, by which he is probably more generally known to the medical profession than by any other of his scientific achievements. Of it he modestly states that "good Fortune, rather than any personal merit, favored me in its invention."

Helmholtz's first published description of the ophthalmoscope appeared in 1851. In 1852 he discovered the ophthalmometer. During this period Helmholtz was also carrying on his researches in color.

In 1856 he published the first part of his classic "*Handbuch der physiologischen Optik*," the greatest work ever written on that subject, and was appointed Professor of Physiology in the University of Bonn, where he remained three years, when he was appointed to the same chair in the University of Heidelberg, at which place he remained until 1871.

While at Königsberg, Helmholtz had begun his studies in physiological acoustics

and from time to time put forth many most striking contributions until, in 1863, he published his famous "*Die Lehre von den Tonempfindungen als physiologische Grundlage für die Theorie der Musik*," a work which manifests not only a profound knowledge of anatomy, physiology and physics, but also of music. This work contains the first scientific study of the physiology and physics of the labyrinth.

In 1887 he was appointed director of the Physico-Technical Institute at Charlottenburg, near Berlin, the duties of which position he managed to carry out while continuing his teaching work.

In these latter years of his life he worked with unceasing energy at problems in the higher fields of chemistry, physics, and electro-dynamics. One of his favorite pupils, Heinrich Hertz, the discoverer of the so-called Hertzian rays, the basis of wireless telegraphy, stated that the inspiration of his discovery was due to his great master.

In 1893 Helmholtz visited the United States as head of the German delegation to the International Electrical Congress which was held at the Columbian Exposition. He was elected Honorary President of the Congress and received with every mark of honor and distinction throughout his stay.

On the return voyage he sustained a severe fall, and his health gradually failed. In July, 1894, he suffered from an apoplectic stroke, which was followed by his death on September 8th of the same year.

For the English reader, a most delightful and authoritative life of von Helmholtz is that written by Dr. John Gray M'Kendrick, which is published in the "Masters of Medicine" series.

FINIENS ORBIS MEDICI

Every man must be the center of *his* world.
Impossible it is that it be otherwise.
No one from the side lines may watch the others
be

While he himself takes not his part.
His part, indeed, must be so staged
As though the only actor he
And all the others ghosts, perhaps not real,
But only fancied dreams of his uncertain will.

For what know I of what you are
Large, small, near or far,
Dark, light, hot or cold,
(Mighty little when all is told)
Save what I learn through these poor tentacles
Called sense, five of them
That in time past have fooled me oft?
How may I trust them now?
"Ego cogito ergo sum"
Was all the great Descartes could prove
And I no further truth can move.

Of what then does this life consist
Save feeling draughts and thinking thoughts?
And we were taught in school to find
That all the world is but mere matter
And matter is but motion and motion mind.
What we are then is but what we think.
Our courage measured, if we shrink
From duties that may seem a wall
Too strong. Our attitude is all;
The way we act when great waves roll
Or griefs cut deep our very soul.

Of all events that tend to make
One greater than another,
None weightier is than that of birth,
Great father and great mother.
Good antecedents are the germs
From which good actions grow.

And who can boast a nobler line
Of ancestors than we?
The goddess of our love's Hygeia.
Our aspirations's Panacea.
Old Zeus himself our grandsire was.
Apollos was his son.
Thus music, light and poetry
Were in us begun.
The sage, Asklepios, next in line,
Was born the fourth from Father Time.
He such magic physic mixed
That backward cross the river Styx

Were brought glad souls. No use to kill
If Pluto thus were cheated by his skill.
Swift thunderbolt from Kronion Zeus
Quick vengeance took.
It was not safe nor politic
Such skill to brook.

Time fails to catalogue the ancient men
Hippocrates and Galen or the rest of them,
For, mind you, there be men of later day
To be remembered in this lay.
Harvey, Hunter, Jenner, Koch,
Pasteur, Lister, Morton; folk
That in their time, so worked and wrote
That pestilence has been conquered
And sickness holds forth hope.
Walter Reed and Gorgas, Osler and Lazear
And many an un-named hero
Who did his bit
And died of it
Almost within the year.

And who of all men has more chance
To think aright than he
Who spends his time in mending men?
Gathering up the fragments of these ill-assorted
lives,
He sees men at their best and at their worst
But classified quite differently
From "Who Is Who."
For weakness, pain and anguish are great
levelers of men
And women too.

The floods of sorrow quickly wash away
The stubble and the mud,
The loose veneer of social caste,
The kind of friends that do not last,
And bring to view the real man underneath,
Perchance a soul of hardest rock
Or shaped in the melting pot
Of past volcanoes.

The doctor has the chance to see these last.
It may be they've been covered in the past
By sands of chance, the drift of sin,
The place of birth, the pigment of their skin
Or other superficial barrier
To eyes that cannot penetrate.
But in the shock of accident
Or on the bed of sickness
The "truth will out"
And they stand forth

Glorious sons of men.
 No storm of life can stir them
 But the cleaner makes them seen.
 Such revelations every day
 The doctor sees. They stay
 With him throughout his life, unfailingly,
 A recollection painted, indelibly,
 In the arena of his experience.

Other men the doctor sees
 Tall and green as any trees
 That circumstances favor.
 Yet, in the storm of ill-adventure,
 Their roots give way, the surface breaks,
 And all their reputation's swept away
 In one foul swirl,
 Branch, root,
 Flower and fruit.
 Nothing can but emptiness remain,
 Never to be refilled again,
 In the physician's mind.
 The film of class or mists of money
 May still cloud the sight of friends.
 Not so of the doctor.
 He knows
 His man from tip
 To toes.
 Sometimes the blasts of sickness
 Open up real rottenness
 For filth and putrefaction breed the greenest
 grass.

"Whited" are these sepulchres and stones
 But "filled with dead men's bones."

In modest way we delve in science.
 Our calling leads us there.
 And with the microscope to guide us
 Far along that path we fare.
 Much further down than most we go
 To the histologic land
 Where tissues, cells and nuclei
 Abound on every hand.
 Chromophilic granules are counted every day
 And karyokinetic figures blossom by the way.
 To vistas theoretic,
 Filled with atoms and electrons,
 We have gazed and gazed in awe.
 Our horizon toward Minutia
 Reaches outward more and more.

Toward Magnutia, in the distance,
 We may look as others do,
 But the same dull fog of mystery
 Meets me as well as you.
 'Tis only with the eye of faith
 That we can see beyond
 The range of telescopes and microscopes
 Or other magic wand.

The mountain's might, the ocean's depth,
 This ever rolling earth
 Make man seem small, a lichen, mold,
 And scarcely worth his birth.
 And then to think that this great earth,
 When all is said and done,
 Would scarcely make a puff of smoke
 If tossed into the sun.

But let us look still further
 Our minds to stretch apace,
 The sun itself is but mere dust
 Compared to Betelgeuze.
 He's twenty-seven million times our sun,
 And he, a tiny speck, a merest point
 In the shoulder of Orion.
 How much further space can run
 Our minds refuse to think.
 We hesitate and meditate
 As we stand upon the brink.

But though the doctor's mount is high,
 The highest in the land,
 And he can see both ways
 Because of his high stand,
 This highest point, this widest view
 But fits him better through and through
 To trust and love each single life,
 Each child, each husband, mother, wife
 Who turns to him in life's ordeal
 Because he's strong, he's true, he's real.
 Too feebly has his world been sung
 With winged words or silver tongue.

What then may I of my profession say
 If I a true confession may?
 I say,
 If God shall grant me all I wish
 And I a finger have in this,
 "My sons shall doctors be
 Because of this finiens orbis medici."

ASKLEPIADOS



CORRESPONDENCE

A LATIN TRANSLATION OF THE COMPLETE WORKS OF GALEN

Through the kindness of Dr. Charles Singer of the University of Oxford, the eminent authority on the history of medicine, I have been put in possession of a large number of facts bearing on the subject of my article—"On a Latin Translation of the Complete Works of Galen by Andrea Laguna."¹ These notes have been compiled by Rev. G. R. J. Fletcher of London, England. Some of these facts are in correction of conjectures regarding one or two places and names; the rest supplement the admittedly meager information I was able to give about the life of Diego Hurtado à Mendoza and about Laguna himself. As I believe the publication of this additional information would enhance the interest of my article, I have permission to submit the following data, for all of which I am indebted to the courtesy of Dr. Singer and Rev. G. R. J. Fletcher.

The place called "Curaiensi" refers to Coria (Cáceres in Spain), a suffragan see of Toledo; "Balneoregis" refers to Bagnorea in Viterbo, Italy, ancient Balneum Regium; "Gieneusi" refers to Jaen in Spain, a suffragan see of Granada.

Diego Hurtado à Mendoza is one of the greatest figures in the history of Spanish politics and literature. He was born in 1503; sent by Charles v as ambassador to Venice in 1538, Venice being at that time the most important of all the diplomatic posts in Europe. While at Venice he threw himself heart and soul into literature. He sent agents to the East to collect Greek MSS.

¹ANNALS OF MEDICAL HISTORY, ii, 384.

for his library. Eventually these MSS. were presented by him to the Escorial Library and were still there in 1848.

In 1543 Charles v recalled Diego and sent him as his personal representative to the Council of Trent. (The Council summoned in 1542 did not open until December, 1545, and it does not appear that Diego attended until May 25, 1546.) When it was proposed (March, 1547) to transfer the Council to Bologna, Charles refused to allow the Spanish bishops to leave Trent, and the tension between the Pope and Charles increasing, the council was suspended in September, 1547. Charles now sent Diego as ambassador to Rome and also made him Captain-General of Siena, a post he appears to have retained until he returned to Spain in 1554. He was exiled to Granada by Philip II from 1568 to 1571, when he was allowed to return to Madrid. He died there in 1575.

Juan Hurtado à Mendoza appears to have succeeded Diego as ambassador at Venice. Probably a near relative of Diego and possibly Laguna was attached to his suite as he writes from Juan's house at Venice. Were Diego's MSS. still at Venice? The Greek MS. of Galen which Laguna translated may have been one which Diego procured from Constantinople. I think it probable that Laguna went from Venice to Diego in Rome as he published three books there in 1551. Diego returned to Spain in 1554 and Laguna's next books are published at Lyons in that year.

Regarding Laguna—Andrés Count of Laguna was born at Segovia in 1499 and died there in 1560. Ramón Ruiz Amado (professor at the College of St. Ignatius, Sarria, Barcelona) in an article on the *Diocese of*

Segovia in the "Catholic Encyclopedia" says that in the old parish church of San Miguel at Segovia is the tomb of the famous Andrés Laguna, physician to Pope Julius III and the Emperor Charles V. Andrés commenced his studies at Segovia, continued them at the University of Salamanca and finished them at Paris. He had been attracted to Paris for the purpose of perfecting his knowledge of Greek, and while there took up the study of medicine.

At Paris he published a Latin translation of Aristotle's *περὶ Φυσιολογικῶν* (8°, 1535), and "Anatomica methodus sive de sectione humani corporis contemplatio" (8°, 1535). He returned to Spain in 1536 and took the doctorate at Toledo.

In 1538 he published at Alcala a Latin translation of Aristotle's *περὶ κόσμου* and a Latin translation of Lucian's *Τετραποδάγγρα* and *ὀκμῖπους*.

He next went to the Netherlands where he came under the notice of the Emperor Charles V and obtained his confidence. He resided at Metz for five or six years. Did he during this period become physician to Charles V?

He published at this period: "Compendium curationis praecautiois morbi passim populariter grassantis: hoc est vera et exquisita ratio noscendae praecavendae, atque propulsandae febris pestilentialis," Strasbourg (8°, 1542); "Europa *ἐαυτονημορουμενη*, sive se ipsum torquens:" actio apud Colonieus XXI, Januarii die anno MDXLIII (Cologne, 1543); "De historia philosophica Galeni" (Cologne, 1543); "Libri octo ultimi ex Commentariis Geoponicis, seu de re rustica olim Constantino Caesari adscriptis" (Cologne, 8°, 1543); Latin translation of *περὶ Φυτῶν* attributed to Aristotle (Cologne, 1543); and a Latin translation of *περὶ ἀρετῶν* attributed to Aristotle (Cologne, 1544).

After five or six years at Metz he proceeded to Italy. If Laguna was physician to Charles it must have been about this time he lost the appointment, as we know that

Vesalius was appointed body physician to Charles in 1544 and always accompanied him to the wars. Laguna is said to have resided at Padua and Bologna. In 1547 he published at Paris: "Victus ratio scholasticis pauperibus paratu facilis et salubris," 8°. In 1548 from the dedication given he was evidently living in the house of Juan Hurtado à Mendoza at Venice. He published at Venice: "Galenī omnium operum, exceptis iis qui in Hippocratem composuit, Epitoma in folio nodate" (another edition following, Bâle 1551); "Galenī vita," Venice, 1548 (Dedicated to Johannes Aquilerius, physician to Pope Paul III); "Annotationes in Galenī versiones quae ad suum tempus prodierunt," Venice, 8°, 1548 (Dedicated to Diego Hurtado à Mendoza, the Emperor's ambassador at Rome). As one of the dedications given is to Ferdinando cognomento à Mendoza, his literary patron, it seems that at this period he had attached himself to the Mendoza family. Another dedication is to Pope Paul III.

Subsequently Laguna repaired to Rome (possibly about 1550?) and may have attached himself to the household of Diego Hurtado à Mendoza. Here he came in contact with Pope Julius III (elected February 1550), the successor of Paul III, and is said to have become one of the papal physicians. This is the more likely, for Julius made him a Count Palatine and also a member of the knightly order of St. Peter. At Rome Laguna published: "De articulari morbo" (Rome, 8°, 1551); "Methodus cognoscendi extirpandique nascentis in vesicae collo carunculas" (Rome, 8°, 1551).

In which year Laguna left Rome I do not know—possibly, if he was attached to Diego's household in Rome, in 1554, when Diego was recalled to Spain, possibly in 1552, the year of the second suspension of the Council of Trent after which Julius III lived in retirement at the Villa Guilia, Laguna's appointment as papal physician may have lapsed.

Laguna is said to have left Rome for Germany but going to Antwerp was taken with a longing for home and returned to Spain. His next publications are: "Epitome omnium rerum at sententiarum quae notatu dignae in commentariis Galeni in Hippocratem exstant" (Lyons, 8^o, 1554); "Adnotationes in Dioscoridis factum a Joanne Ruellio interpretationem" (Lyons, 16^{mo}, 1554); and "Epistola apologetica ad Joannem Cornarium" (Lyons, 8^o, 1554).

Laguna died in 1560 and was buried, as I have said, in the parish church of San Miguel, Segovia. It would be interesting to know whether there is an inscription on the

tomb, if so whether it states that he was physician to Julius III and Charles V.

Pedro Pacheco of Jaen known as "Petrus Gienensis" was one of the Spanish theologians sent to the Council of Trent who distinguished himself in the early sessions. He was the son of Conde de Montalban. Pedro was Bishop of Mondoñedo in Spain in 1533-7; later he became Bishop of Jaen; subsequently Bishop then Archbishop of Burgos, the see being raised to an Archbishoprick during his tenure. He was then created a cardinal. He was Bishop of Jaen in 1548 when Laguna dedicated the work to him.

D. FRASER HARRIS,
HALIFAX, N. S.





BOOK REVIEWS

HISTORY AND BIBLIOGRAPHY OF ANATOMIC ILLUSTRATION, In Its Relation To Anatomic Science and the Graphic Arts. By Ludwig Choulant. Translated and Edited with Notes and a Biography by Mortimer Frank, B.S., M.D., Chicago. University of Chicago Press, 1920. 8vo., 435 pp. Price, \$10.00.

The history of the growth of anatomic knowledge has as its natural accompaniment an exposition of the obstinacy with which traditional errors were clung to by teachers of anatomy during the first sixteen centuries of the Christian era. As anatomy is primarily an objective science capable of positive demonstration it is remarkable that for many hundreds of years after, as well as throughout the thousands of years (during which we know of the intellectual activities of man) before the birth of Christ, man remained in such ignorance of his own structure that even the so easily demonstrated circulation of the blood, and the true functions of the lungs were unknown until the seventeenth century A. D. The primary reason for such ignorance was religious superstition, such as the fear that the mutilation of the body interfered with its subsequent resurrection as a suitable abiding place for the immortal soul. Such superstition prevailed among the Greeks, Arabs, Hebrews, Egyptians, and other races of antiquity and was favored by the attitude of the Roman Catholic Church.

Human dissection though performed in the schools of Alexandria, had practically ceased throughout the world from the termination of the Alexandrian epoch until the commencement of the fourteenth century. The early copies of the manual of anatomy by Mundinus, dating from 1316,

are not illustrated. The first anatomic illustrations appearing in Ketham (1491), Peyligk (1499), and Hundt (1501), are all schematic and, as Choulant states, intended merely to refresh the student's memory, not pretending to represent the actual appearance of the parts of the body. Thus Choulant begins his study of anatomic illustration with the revival of anatomic science in the fourteenth century and gives as the first heading of his classification the period prior to Berengarius da Carpi (1521), in which attempts at anatomic illustration were confined to schematic drawings and to studies made by artists for the purposes of their art and with no idea of instructing others in the anatomy of the human body. The later studies of Sudhoff have thrown a flood of light on this period and the many recent publications on the anatomic studies of Leonardo da Vinci and other artists have revealed of what great value the work of these men would have been to contemporary anatomists had they but realized it. In the second period, from Berengarius to Vesalius (1521-1543) anatomic illustration lost its schematic characteristics and gradually developed into reproductions of the structures of the body in their real relations, merging into the third period (1543-1627) in which the anatomic woodcut reached its highest development. Choulant's last three periods consider the development of the scientific and technical sides of the subject down to modern times.

Ludwig Choulant was a pioneer and his book published at Leipsic in 1852 remains a classic. The late Dr. Mortimer Frank of Chicago was an enthusiastic student of the history of anatomy and as Choulant's book

was out of print and there had been no English translation, he undertook the great task of not only translating the original work but of incorporating in it some notes published by Choulant in 1857, which were intended for use by him in a second edition which did not appear. Dr. Frank also added much information which has been attained by the researches of Sudhoff and others, and further a number of illuminating notes of his own, and a biographic sketch of Choulant. The death of Dr. Frank before the publication of his work has not impaired its value as he had completed his labors. There is prefixed a sympathetic sketch of his life by Dr. Fielding H. Garrison in which he points out how the prosy somewhat obscure style of Choulant has been vivified and brightened by the light touch of the translator. Two additions to the volume which add greatly to its value are an article by Fielding H. Garrison and Edward C. Streeter on "Sculpture and Painting as Modes of Anatomical Expression," and one by Garrison on "Anatomical Illustration since the Time of Choulant."

With the various addenda noted above, and the careful editing which the entire text has received, the present volume is vastly superior in every respect to Choulant's original work. The illustrations which accompany the text are excellent. The resulting whole is one which reflects the greatest credit on all concerned in its production and redounds to the credit of American work in the history of medicine.

FRANCIS R. PACKARD.

THE HISTORICAL SOURCES OF DEFOE'S JOURNAL OF THE PLAGUE YEAR. Illustrated by extracts from the original documents in the Burney Collection and Manuscript Room in the British Museum. By Watson Nicholson, Ph.D. The Stratford Company, Boston. 1919.

The author of this most interesting treatise on Defoe's famous narrative has compiled with evident labor and research a great mass of corroborative material to

prove the truth of the story told by Defoe, and he has certainly succeeded in his effort. All Defoe's most improbable statements, statistics, recitals of terrible sights to be seen in the streets or of the horrible misfortunes befalling individuals or families are found to be actual reproductions of facts which can be verified by official statements or by historic documents. Even the story of Solomon Eagle, the Quaker, who ran naked in the streets raving, Dr. Nicholson thinks he has duplicated by the narrative of the performances of other eccentric Quakers. He admits that the narrative of the three men who escaped from the city and wandered about the country, has a fictitious ring.

Dr. Nicholson's main contention is that "Defoe's Journal" should be classed as history, not fiction, and he mentions in a somewhat grieved manner that in libraries, or in such series as Everyman's Library, it is put under the head of fiction. He excuses Defoe's use of the first person singular in the narrative as merely a pardonable ruse to make his book more generally popular and unlike a dry-as-dust history.

We must confess that though we feel that Dr. Nicholson has done a service to the book in establishing the essential accuracy of its details, our conviction is that any book which claims to be a narration of facts written by one who participated in them, must be classed as fiction, if the author did not actually see what he relates or was not an actor in them. Thackeray's "Henry Esmond" is as accurate historically as the "Journal" which Defoe claims was written by a sadler of London, yet no one would think of classing it under any other class than fiction.

It is true that the "Journal" is not a novel because it contains no plot, but just as it is not strictly speaking a novel, neither can it be classed otherwise than as a fictitious narrative, having been written by a fictitious person.

Dr. Nicholson's work is a valuable contribution to the literature of the plague, as well as to the bibliography of Defoe. The "Journal" was written at a time when the people of London were apprehensive of another plague visitation; the plague was raging at Marseilles, from whence its entry into London was feared. Defoe, with true journalistic instinct, promptly wrote a timely book. The recent influenza epidemic has brought to the minds of many people a realistic conception of what such visitations involve. It is to be hoped that Dr. Nicholson's book will revive interest in one of the most famous of the English classics, and that the lessons that Defoe tried to teach his generation will be of some benefit to ours.

FRANCIS R. PACKARD.

THEOPHRASTUS BOMBASTUS VON HOHENHEIM CALLED PARACELSUS. By John Maxson Stillman, Professor of chemistry, emeritus, Stanford University. Chicago-London: The Open Court Publishing Co. 1920.

Professor Stillman has performed a real service to many who, while desirous of understanding something of the real character and achievements of Paracelsus, have been overwhelmed in the attempt by the obscurity which involves his life as well as his writings. In this small volume the most important known facts of his life and career are summed up and an excellent résumé given of his most important contributions to science. Paracelsus was neither a blatant charlatan nor a drunkard, the two accusations most frequently levelled at him. From his own works and from the vast literature which has arisen concerning him Professor Stillman has, we think with much success, tried to present an impartial study. Though there is some autobiographic and contemporary material available the merest outlines of his varied life are known.

Theophrastus Bombastus von Hohenheim, more generally known as Paracelsus, was born at Einsiedeln in Switzerland, December 17, 1493. His father was a physi-

cian, and was legally married to his mother although the enemies of Paracelsus sometimes reproached him with illegitimacy. When the boy was nine years old his father removed to Villach, in the mining district of Carinthia. Paracelsus began his medical and scientific training with his father and afterwards studied chemistry with and natural philosophy under some of the numerous students of those subjects who were working in the mining towns of the country. When twenty-two years old he worked for a year in the laboratories and mines of Sigmund Fûger at Schwatz in the Tyrol, and then departed on extensive travels in which he visited Denmark, Sweden, England, France, Belgium, and possibly Italy. At some university in the course of his journeys he possibly received the degree of doctor of medicine although his antagonists asserted that he never did, and he never denied the accusation although he alludes to it in his writings. Part of the time he served as an army surgeon. As Stillman points out the official records of Strassburg term him "doctor of medicine" and show that he was appointed city physician to the town. Before he entered upon his duties, however, he received and accepted the position of Stadtarzt or city physician at Basel, a position which carried with it the functions of professor of medicine in the University of Basel. He soon got into trouble with the other members of the faculty because of his anti-Galenical teachings and the arrogance he displayed towards his colleagues. Likewise he scandalized them by lecturing in German instead of Latin. It was at this time that he emphasized his defiance of the traditional authorities by throwing some of their works into a bonfire. He remained at Basel only a little over a year when he was obliged to flee because, having lost a lawsuit, he had criticized the judges in such a way as to render himself liable to severe punishment. The remaining thirteen years of his life were passed in

various cities of Germany and Austria, at times in great poverty, maintaining himself by giving lectures and writing voluminously on medicine and chemistry. Occasionally his fame led to his being called in consultation to some wealthy person, and his fortune fluctuated with his practice. He died at Salzburg, Austria, on September 24, 1541, and was buried in the cemetery of the Hospital of St. Sebastian in that town. It has been asserted by some that he died as the result of a drunken debauch, by others that professional enemies caused him to be assassinated. Professor Stillman shows how baseless these charges are by giving a transcript of his will, written three days before his death, and evidently in immediate anticipation of it.

Professor Stillman explains the apparent mysticism of much of the teaching of Paracelsus by the fact that his great aim was to break the bonds of tradition and dogma by which medicine was held enchained, which he thought could only be done by the "Light of Nature" which included not only the study of natural objects by means of our hands and eyes but also the influence of the stars and other agencies usually regarded in his time as supernatural upon the life and health of man. The science of medicine rested according to Paracelsus on four pillars, philosophy (in which he included natural philosophy), astronomy (which included astrology), alchemy (meaning chemistry), and virtue (or righteousness). Instead of the four Aristotelian elements, earth, air, water, and fire, Paracelsus taught that there were three elements—mercury, the principle of liquidity or volatility; sulphur, the principle of combustibility; and salt, that principle which is permanent and resists the action of fire. Paracelsus attempted, as the ancients, to find an accordance between the macrocosm or universe, and the microcosm or man. Thus the macrocosm consisted of three worlds, the visible and tangible; the

astral (or sidereal), the world of the heavenly bodies; and the celestial, or the divine and spiritual. Man, the microcosm, consisted of three corresponding spheres, the visible and tangible, that is, the fluids, organs, bones, etc.; the astral, the sensations, seeing, feeling, perception; and the celestial, the soul.

Stillman gives a most excellent exposition of the Paracelsan theory of disease, the five entities or "ens" which influence the health of man, and the "archaei" which situated in the various organs act as their directing force and regulate their functions. Paracelsus was a great believer in the healing power of nature: "In nature's battle against disease the physician is but the helper, who furnishes nature with weapons, the apothecary is but the smith who forges them. The business of the physician is therefore to give to nature what she needs for her battle—Nature is the physician."

Paracelsus strove to reform the medicine of his day but his efforts were marred by the arrogance with which he behaved. Some of his pages read like the compositions of a paranoiac. He heaps abusive epithets on the ancients as well as on his contemporaries, and continually asserts the vast extent of his knowledge over theirs.

Professor Stillman ranks very high the chemical achievements of Paracelsus, not so much for any epoch-making discovery as for their general importance in the introduction of chemical substances and methods into more general use: "By pointing out a rational and promising field for chemical activity and by his own successful application of chemically prepared remedies he inaugurated a movement which has continued without interruption and with increasing importance to the present day." The contributions of Paracelsus to practical medicine and surgery were quite considerable. He wrote much on syphilis and was the first to state that it might be inherited. He is said to have been the first to point out the relationship between cretinism and

goiter. Instead of the customary treatment of wounds with plasters or poultices, he said: "Every wound heals itself if it is only kept clean." He advocated cleanliness, protection from dirt and "external enemies," and the regulation of the diet.

Professor Stillman's book contains a number of interesting illustrations. By those who have studied the life and writings of Paracelsus, it will be esteemed as a useful contribution to the literature. By those who have been awed by the difficulties in the way of a correct understanding of the character and work of this enigmatical being the book should be read, and we feel sure that by it they will be stimulated to further effort.

FRANCIS R. PACKARD.

STUDIES IN THE HISTORY AND METHOD OF SCIENCE.
 Edited by Charles Singer, Vol. II, Oxford, Clarendon Press, 1921.

This handsome volume will be hailed with delight by those familiar with the previous issue of these "Studies." In a brief preface Dr. Singer directs attention to some of the evidences of a greatly awakened interest in the history of the sciences and holds out the welcome assurance that in the future these "Studies in the History and Method of Science" will appear as an annual volume.

The book opens with a splendid contribution by Dr. Singer on Greek biology and its relation to the rise of modern biology. Defining science as the conscious formation of theories to explain natural phenomena and the conscious collection and record of data as a basis of these theories, Singer considers that science with the Greeks began with the speculations of the Ionian philosophers in the sixth century B. C. and continued its course of positive achievement until the second or third century A. D. From thence until 1543, the year in which Copernicus and Vesalius gave their epoch-making works to the world, science lay to all appearances dead save for occasional indications

of a spark of life. He shows how the old Greek science was linked to philosophy and never lost its subserviency to it, whereas the new science that arose with Vesalius and Copernicus had but little connection with the philosophies of the Renaissance; the "passive increase of knowledge brought by the revival of the Greek language" must be distinguished from the "active extension of knowledge by direct observation that is the essence of the experimental method." Singer makes a lively and just comparison of the difference between Greek scientific literature and the modern method of recording scientific observations. He then gives a lengthy and most interesting study of the zoological system of Aristotle and the botanical system of Theophrastus contrasting and comparing them with our modern classifications, and directing attention to the many instances in which Aristotle's system is practically identical with that in vogue among the zoologists of today.

The article by J. L. E. Dreyer on medieval astronomy is an interesting review of the great work of the late M. Duhem, "Le Système du Monde, Histoire des Doctrines cosmologiques de Platon à Copernic." In the next article Robert Steele discusses Roger Bacon and the state of science in the thirteenth century and as there seems to be just at this moment a revived interest in Bacon's work the essay is timely. Dr. Steele makes no reference to the cipher manuscript written supposedly by Bacon which was discovered some years ago by Wilfred Voynich. Since his article has appeared, this mysterious manuscript has been deciphered by Prof. William Romaine Newbold of the University of Pennsylvania who explained his method of deciphering and reading it at a meeting of the American Philosophical Society this spring. Perhaps this is the manuscript referred to in a statement made in 1579 that Leonard Digges "was able by Perspective Glasses duely situate upon convenient Angles, in

such sort to discover every particularitie of the Countrie round about, wheresoever the Sunne beames might pearse . . . which partly grew by the aid he had by one old written book of the same Bakon's experiments, that . . . came to his hands," and which Steele states is missing.

A most thoughtful analysis of the anatomical knowledge of Leonardo da Vinci is given by Hopstock. This article has been translated from the Norwegian by Fleming. The question—whether the Asclepiades who practiced medicine were priests, or simply lay physicians—had been in dispute for many years. Withington discusses the subject in a manner showing both his erudition and his wit. The latter is manifest in two quotations with which he commences his article. Both are taken from the "Encyclopedia Britannica," edition of 1911. In the article on "Hippocrates" Sir J. B. Tuke asserts that they were priests, whereas in the article on "Medicine" Payne states positively that they were not. Withington adheres to the latter view. Fahie furnishes an exhaustive critique of Favaro's "Edizione nazionale dell Opere di Galileo," which offers a most excellent résumé of the chief points in Galileo's life and works.

The history of anatomical injections is thoroughly and charmingly described in an article by F. J. Cole who, while showing the great if not exaggerated importance attached to them when their practice was first generally understood, shows that the field of their influence is now practically exhausted. He recalls the fact that the French Academy in 1727 chose Ruysch as the successor to Sir Isaac Newton, as an instance of the exaggerated esteem in which the injection method was held, although its admittedly great importance as an adjunct to anatomical study is demonstrated throughout the article. F. S. Martin in an optimistic discussion on science and the unity of mankind expresses the belief that international comity will be brought

about sooner and more effectively by community of interest in science than by any other agency. To Americans his assertion of his belief that the League of Nations will shortly become the dominant political factor in the world is not so clearly demonstrable.

Conybeare describes four Armenian tracts on the structure of the human body. There are several MS. versions of these tracts in European museums so that they must have been widely circulated and regarded as standard texts at an earlier period than the twelfth century. So little literature is available on Armenian medicine that these MSS. are a valuable addition to our scanty knowledge.

Singer's "Steps leading to the Invention of the First Optical Apparatus" begins the story of the development of the optical lens at an earlier period than most of the works on the subject discussing all the available references to burning glasses, globes, etc., to be found in the classical writers. He then traces the history of optics through the works of Euclid and other Greeks to the Arabians, thence to Roger Bacon, whose optical studies were truly remarkable. Spectacles were surely invented in the 13th century but by whom is somewhat in doubt. The omniscient Leonardo da Vinci represents according to Singer the turning-point between medieval and modern optics.

The two succeeding articles: "Hypothesis" by Schiller, and "Science and Metaphysics" by Jenkinson, though most interesting and thoughtful studies do not call for particular notice in a journal devoted to medical history, nor does Child's "Archimedes' Principle of the Balance and Criticisms upon It," nor, though most fascinating to the botanist, Arber's "Paleobotany." The last article, Platt's "Aristotle on the Heart" is a valuable exposition of Aristotle's text on that organ and an attempt to explain some apparent inconsistencies in the usual interpretations thereof.



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TAOIST IDEAS OF HUMAN ANATOMY

E. V. COWDRY, PH.D.*

PEKING, CHINA

THE White Cloud Temple, situated about half a mile outside the Hsi Pian Gate of Peking, contains by far the most complete library of Taoist medical and literary books, but to study them is no easy matter. It is necessary in the first place, to find a friend of the High Priest to act as go-between. Fortunately Mr. Ma Kiam, who has helped me throughout in the most generous way, was able to secure introduction through the kindness and courtesy of Mr. Hsu Seng Yu of the Department of Education. Nevertheless, when all was in readiness, a message was received saying that the High Priest was obliged to pay a visit to the Western Hills and could not see us; so the next Sunday plans were made to visit the temple in the afternoon. Another message came that there were services in the afternoon and that we must come in the

morning or not at all. We secured a motor car, on a very few minutes notice, and set out.

With commendable foresight Mr. Hsu brought with him a fine old Chinese book eulogizing the memory of the first High Priest of the Temple who lived and died many hundred years ago. This tickled the fancy of the present incumbent mightily. When we came the second time, after going through the usual preliminaries of drinking tea with the junior priests and then with the Chief himself, we presented him with a photograph which pleased him still more, and for a very singular reason. The photograph is here shown (Fig. 1) and it will be seen that the sun is shining brightly upon the front of the black silk hat which he is wearing. This brightness he declares to be the fire of his own intellect ("his inward flame"), and we alone have thus far succeeded in photographing it. He has asked for many copies to send to his friends and we have risen so high in his estimation that he has ordered some of his priests to our hospital for medical treatment. He is indeed a fine old man, well

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beyond the average in height and with a beard containing just seventeen carefully cultivated hairs. He is of the opinion that to be healthy one must be happy and he lives up to it.

After about ten days, he returned our call and it was a pleasure to show him



FIG. 1. It will be seen that the sun is shining brightly upon the front of the High Priest's silk hat. This brightness he declares to be the fire of his own intellect and compliments us on our success in photographing it for the first time.

everything and to listen to his comments. He was pleased with the deference of our students and delivered himself of a little impromptu address, in the dissecting room, on his ideas of the circulation of semen up the back and through the three "burning-spaces" (approximately, thorax, upper and lower abdomen). It was indeed an interesting study in contrast, this courtly priest in his gorgeous blue silk robes surrounded by our white-clad students pressing close

and pouring eager questions into his deaf old ears. We passed from building to building. The changes in the color of the chemical indicators in Miss Embrey's laboratory seemed like magic. He entered an elevator for the first time, saw something of the marvels of electricity and at the end of two hours was quite bewildered. But not once did he voice the usual comment of Chinese visitors: "How skillful are these Americans in devising new ways of wasting money!" He is a personage, calm and dignified, like the Lama in "Kim" and not poor in worldly goods. His temple is said to be the largest of its kind in China and was greatly enriched by the late Empress Dowager, through the Taoist, "Kow," whom she honored. In 1227 A.D., it was called the "Tai Chi Palace" and was made the official residence of the First High Priest (Chen Chu Chi) by the Emperor Gengis of the Yuan Dynasty. The buildings are truly regal and house two hundred priests, who, according to the canons of their faith, are allowed to marry and keep families. The High Priest claims not to avail himself of the privilege.

The father of Taoism, Lao Tzŭ, wrote his famous book, the "Tao Tê Ching," about six centuries before Christ. Some say that he was born of a virgin "who conceived him at the sight of a falling star." A few short quotations from Giles' translation¹ will indicate the simplicity of his message:

There is something, chaotic yet complete, which existed before Heaven and Earth. Oh, how still it is and formless, standing alone without changing, reaching everywhere without suffering harm! It must be regarded as the Mother of the Universe. Its name I know not. To designate it, I call it Tao.

Tao eludes the sense of sight, and is therefore called colorless. It eludes the sense of hearing, and is therefore called soundless. It eludes the

¹ Giles, Lionel. *The Sayings of Lao Tzŭ*. The Wisdom of the East Series. John Murray, London, 1917.

sense of touch, and is therefore called incorporeal. These three qualities cannot be apprehended and hence may be merged into unity.

Tao produced Unity; Unity produced Duality; Duality produced Trinity; and Trinity produced all existing objects.

Thus it is that Tao, engendering all things, nourishes them, develops them, and fosters them; perfects them, ripens them, tends them and protects them.

Tao is the sanctuary where all things find refuge, the good man's priceless treasure, the guardian and savior of him who is not good.

Why was it that the men of old esteemed this Tao so highly? Is it not because it may be daily sought and found, and can remit the sins of the guilty?

It is the Way of Heaven to take from those who have too much, and to give to those who have too little.

He who exalts himself does not rise high.

He who overcomes others is strong, but he who overcomes himself is mightier still.

Good words shall gain you honor in the market-place, but good deeds shall gain you friends among men.

To the good I would be good; to the not-good I would also be good, in order to make them good.

Requite injury with kindness.

Keep behind, and you shall be put in front; keep out, and you shall be kept in.

What makes a kingdom great is its being like a down-flowing river. . . or like the female throughout the world, who by quiescence always overcomes the male. And quiescence is a form of humility.

This gospel of kindliness soon underwent the most unspeakable degradation so that Kublai Khan ordered all Taoist books, with the exception of the "Tao Tê Ching," to be burnt. I like to think of the old High Priest as an exception proving that there is a little good in everything. But Lao Tzû's "*laissez-faire*" philosophy still lingers and forms the stumbling block of the whole Chinese nation. It may be expressed in the words of Giles' translation as follows:

Who is there that can make muddy water clean? But if allowed to remain still, it will gradually become clear itself.

Keep the mouth shut, close the gateways of sense, and as long as you live you will have no trouble.

Practice inaction, occupy yourself with doing nothing.

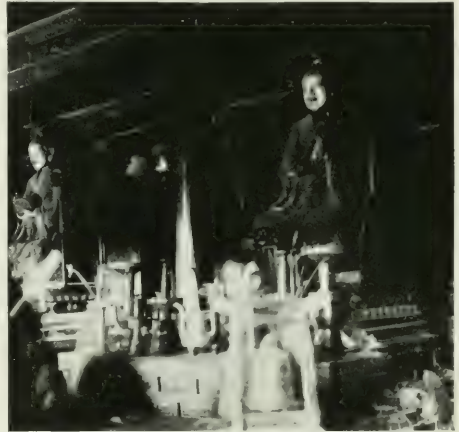


FIG. 2. The books are kept in a series of Chinese chests behind large images. Some are shown on the extreme right in the photograph.

Leave all things to take their natural course, and do not interfere.

Every assistance was given to us in the examination of the library with its record of this philosophy. According to the High Priest, we were the first foreigners to be admitted. The statement should, however, be taken with a grain of salt; it may have been made to please us, or he may have been misinformed. The library contains 5,485 volumes printed during the reign of the Emperor Cheng Tung (1436-1449 A.D.). Some of them are copies of old Chinese classics without Taoist tendencies. All the books are kept in Chinese chests sealed up with strips of paper because the library is a secret one and is not open to the public. Some of these chests may be seen behind the images in the illustration (Fig. 2). They are bound quite differently

from those in the library of the Boy Emperor, being arranged so that each volume will unfold to a length of fifty or an hundred feet like a sort of scroll. Old type used in printing the catalogue of the library, which was done quite recently under Mr.

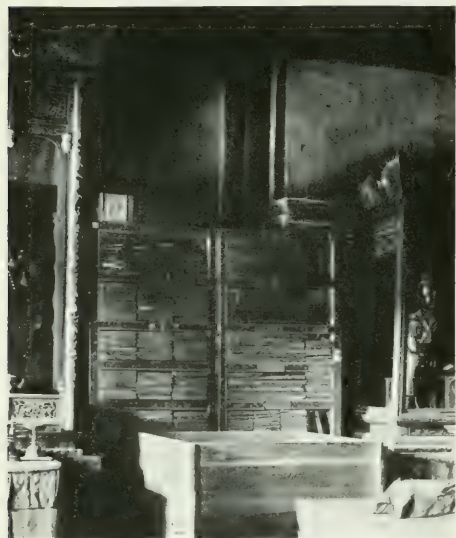


FIG. 3. Old type used in printing the catalogue of the library is piled up between the minor shrines.

Hsu's supervision, is piled up between the minor shrines (Fig. 3). The books are unique and of great value, but no special care is taken to guard them. They are kept on the second floor of a building constructed almost entirely of wood. Perhaps the reason why they have lasted so long is that they have been so completely forgotten. Certainly the foreign troops who looted Peking in 1900 would have paid a visit to the White Cloud Temple had they known of the treasures that it contains.

The High Priest (Chen Yu Kuen) fully appreciates the desirability of having the books reprinted; but he is a wise old man and declined the offer of the Commercial Press in Shanghai because he knew that if the books ever left Peking he would never see them again. The Commercial

Press is now opening an office in Peking and President Hsu is reported to be taking an active interest in the negotiations. The idea is to print one hundred copies of each of the books at a total cost of about \$400,000, Mexican, or, at the present rate

肺
神
字名
威龍
成華

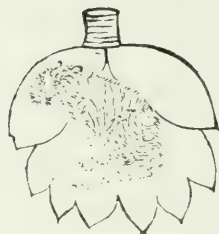


FIG. 4. A white tiger inhabits the lungs.



FIG. 5. A turtle and snake reside in the gall-bladder.

of exchange (March, 1921), of \$180,000, United States currency. But plans miscarry in China and we shall have reason to be thankful if the library continues to be spared from looting and from fire, and remains accessible to those who really care to use it.

We examined the books in the dim light of the temple on one of the altars before the images. None of the drawings is intended as acupuncture charts or as guides for the application of moxa. The central idea of this perverted Taoism is demoniac. Great attention is paid to animals. The White Cloud Temple is, in fact, an asylum for old and decrepit pigs and for certain kinds of birds which are kept in comfort

until they die. Each of the six organs of the human body is thought to be inhabited by a certain animal as illustrated in a book of the Sung Dynasty, whose author has chosen to remain anonymous. A white tiger inhabits the lungs (Fig. 4), a turtle and a

expect in a posterior view), the kidneys connecting with the spinal cord. Why the author has transposed everything, placing the liver on the left side and the spleen on the right, it is difficult to say. The drawings have probably never been examined critic-



FIG. 6. A dragon has its home in the liver.

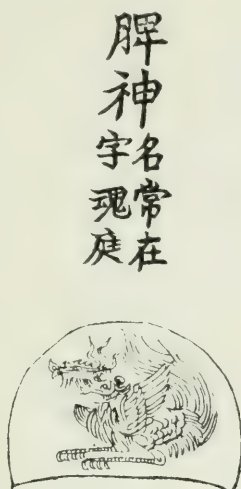


FIG. 7. A phoenix lives in the spleen.



FIG. 8. A red bird lives in the heart.

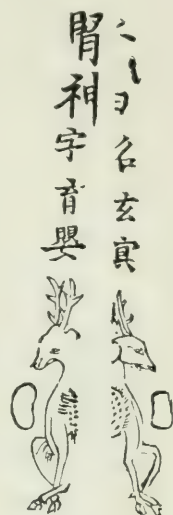


FIG. 9. A deer with two heads lives in the kidneys.

snake reside in the gall-bladder (Fig. 5), a dragon has its home in the liver (Fig. 6), a phoenix lives in the spleen (Fig. 7), a red bird in the heart (Fig. 8), and a deer with two heads in the kidneys (Fig. 9).

The "Nan Ching," written by Li Chung in the fifth year of the Emperor Hsien Sung (1269 A.D.), is, from our point of view, the most valuable book in the collection. It contains diagrams of the viscera viewed from the front (Fig. 10) and from behind (Fig. 11). The anterior view shows the liver in black on the left side (of the body), the lobulated lungs above, the stomach in the middle and the spleen on the extreme right. The other diagram shows the same arrangement and, in addition (as one would

內境背面圖



FIG. 10. Viscera from the front.

內境正面圖

ally enough in the last six hundred years to detect the mistake.

Fig. 12 is a composite drawing indicating how elaborate are the relations of the various spirits and genii. Fig. 13 directs attention to the exact place where the pulse should be felt during the twenty-four seasons of the year (in the summer nearer the fingers, and in the winter, farther up the arm). Fig. 14 is designed to illustrate differences in temperature in different parts of the body. At the head is a broken line be-

天地陰陽升降始終之圖

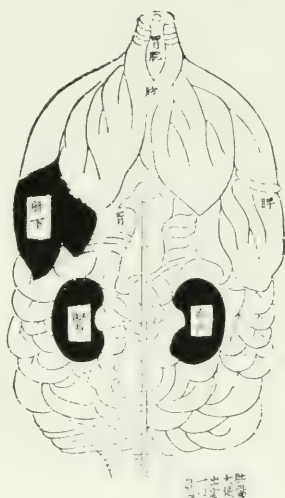


FIG. 11. Viscera from the back.

tween two solid lines, which means fire, and at the feet is a solid line between two broken ones, which means water. Going upward toward the head the temperature of the body increases, which is thought to explain the circumstance that clothing is not needed to protect the head from cold. The other signs indicate combinations of male and female principles. The pure male principle (not here shown) is represented by three solid lines which also indicate Heaven; the pure female principle by three broken lines which also signify Earth. A proper association of these principles is essential for life and happiness.

內境背面圖



FIG. 12. A composite drawing indicating how elaborate are the relations of the various spirits and genii.

in the study of animals with occasional verification at executions by the method of "a thousand cuts" (slicing process).² With each transference the diagrams have become less and less like the organs which they are supposed to represent so that all (Figs. 4-9), except the lungs and kidneys, are quite unrecognizable without the help of the Chinese text.

Taoists do not carry on any active instruction in anatomy. Ideas are merely traditional and diffused from the priests to the laity in garbled form. Apparently no

² Hsieh, E. T. A Review of Ancient Chinese Anatomy. *Anat. Rec.*, Phila., 1921, xx, 97.

new books are written. How different it is with the conceptions of anatomy which underlie the art of needling (or acupuncture)! These are actively taught by the apprentice method, and in small schools, to students throughout the great Republic. It is the old and familiar doctrine of the circulation of humors over again. Life is thought to depend upon an appropriate adjustment between circulating male and female principles. In disease, the malicious excess of one or the other is removed by

in an attempt to specify Taoist ideas of anatomy because the religions of China are such a wonderful mixture.

We are told that forty different sects of Taoists can be counted in Peking and its vicinity, but they become less powerful as one travels toward the south of China. They all, however, have fundamentally the same ideas and constitute a large and important element in the population. They are not supposed to believe in healing by relieving the body of the "malicious excess"

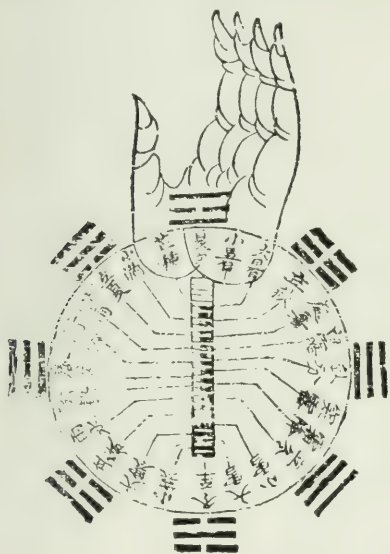


FIG. 13. Attention is directed to the exact place where the pulse should be felt during the twenty-four seasons of the year.

inserting needles of great variety into the body in certain very definite localities. It is recognized in the office of Imperial Physicians, where the official text book, called the "Golden Mirror," published under the patronage of the illustrious Emperor K'ang Hsi (1661-1722 A.D.), may be seen. The anatomical drawings contained in this book are a considerable improvement since most of them can be identified without reading the text. It is unsafe to go very far

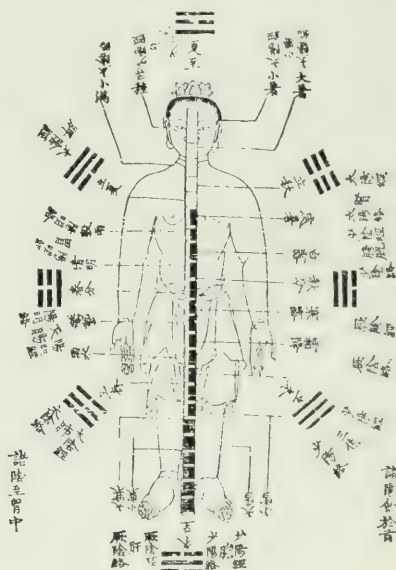


FIG. 14. Diagram indicating increases in body temperature as one passes toward the head.

of male or female principles through needling, though they may sometimes practice it. The Taoist pharmacopeia is restricted entirely to mineral preparations, all the animal excreta, "spirit pills," made of tapeworms soaked in children's urine, finger nails, etc., being omitted. They have not tried to devise concoctions which would be so disgusting that the offending demons would flee in terror. The priests sometimes attempt to distill mercury. When the dis-

tilling has been successfully repeated nine times, the resulting substance will be the "Elixir of Life." One of the priests of the White Cloud Temple is said to have been killed by an explosion during the sixth distillation. Their panacea for all ills is to make the mind absolutely blank and to

them. On the Chinese New Year and other festal occasions he takes a long holiday, goes through the ceremonial and buys a few coppers' worth of cheap incense. Foreigners are quick to notice the absence of any expression of reverence. The priests speak in loud tones and do not act as if



FIG. 15. A disciple worshipping three Buddhas in the familiar stormcloud setting.

remain motionless in accordance with the Master's teaching; but no cures have recently been reported.

Evidently one of the prerequisites to the introduction of modern medicine into China is a readjustment of the habit of mind of the people, whether they be Taoists, Buddhists or Confucianists. It is safe to say that the average Chinese, in order to be quite on the safe side, espouses all three faiths in a half-hearted way, and has no really serious conviction regarding any one of

they were treading upon holy ground. In the sanctuary of the Taoist Temple of the Universe, Christian Bibles, printed in Chinese, are quite openly offered for sale. Stacks of them may be seen in a cloud of incense upon one of the sacrificial tables immediately before the largest image. If Roman Catholic priests were to sell Chinese idols under the dome of St. Peter's, we should be inclined to accuse them of insincerity. About five hundred years before Christ, Confucius begged the nation to be sincere

and to refrain from contemplation of the supernatural:³

Be sincere and men will trust you.

Make conscientiousness and sincerity your main object.

I do not see how a man without sincerity can be good for anything.



FIG. 16. The spirit which is held responsible for protecting the "Nan Ching."

Before we are able to do our study by the living, how can we do it by the spirits of the dead?

³ Giles, Lionel. *The Sayings of Confucius*. The Wisdom of the East Series. John Murray, London, 1912.

Before we know what life is, how can we know what death is?

Absorption in the study of the supernatural is most harmful.

Why, it may then be asked, do the people fly right in the face of the Master's teaching? The ignorant are perhaps inspired by fear, the educated by a reluctance to lose face. Their forefathers have bent the knee and offered incense for forty centuries. It would be presumptuous for them to fail in the practice and thus to repudiate the actions of their long line of ancestors. More perhaps than any other nation on Earth, the Chinese treasure their past. In the Office of Imperial Physicians,⁴ an image of Huangti, the mythical father of Chinese medicine, is worshipped twice a year and the practice condoned by Chinese who have taken their medical degrees in the United States and who apparently see nothing incongruous in it. For them it is merely an appropriate memorial to the glorious past, sanctioned by custom.

Very little progress can be made before the people of the nation learn to look forward as well as backward and to realize that the most appropriate offering they can make to their ancestors is to be perfectly sincere in all their dealings, to have done with blind ceremonial and to use the brains which have been handed down to them to the very best advantage, reasoning out the simpler facts of existence for themselves. "Young man know thyself"—is a command the utilitarian value of which is certainly not appreciated in China. Illiterate children at home know more of their bodily makeup than the most venerable of Chinese sages. But with knowledge of anatomy, a persistent yet unwelcome visitor, superstition, with its cast-iron limitations is bound to become less powerful.

⁴ Cowdry, E. V. *The Office of Imperial Physicians*, Peking.

THE LIBRARY OF THOMAS LORKYN

By C. SAYLE

CAMBRIDGE, ENGLAND

SINCE the life of Thomas Lorkyn has been adequately described in the "Dictionary of National Biography," it will be best to quote from the index and epitome of that publication the entry relating to him:

Lorkyn (Thomas), 1528?-1591. Regius professor of physic at Cambridge; educated at Pembroke Hall, M.A., 1555; M.D., 1560; fellow of Queens' College, of Peterhouse, 1554-62; published "Recta Regula et Victus ratio pro studiosis et literatis," 1562; regius professor of physic, 1564.

The contemporary history of medicine at Cambridge may be summed up in a few illustrative facts.¹ William Butts of Gonville Hall was graduated M.D. in 1518, the year of the founding of the London College of Physicians. In 1521, the first year of printing in Cambridge, Linacre's translation of Galen's "De Temperamentis" was printed there. In 1524 the Linacre lecture was founded at St. John's College. Thomas Wendy, physician to Henry VIII, Edward VI and Queen Mary, was incorporated M.D. from Ferrara in 1527. In later years he was granted the manor of Haslingfield, near Cambridge. In 1530 William Turner the herbalist was a fellow* of Pembroke Hall. John Frere, a Cambridge physician, became a fellow of his college in 1536. In 1538 Robert Huicke, an Oxford man, took his M.D. degree here. Turner's description of the state of science in Cambridge at the time may be quoted:

Being yet a student of Pembroke Hall, I could never learn one Greke, neither Latin, nor English name, even among the physicians, of

¹My friend, Dr. F. J. Allen, contributed some papers on "Evolution of the Medical School at Cambridge" to the *British Medical Journal* for 1920: March 13 (p. 369); April 10 (p. 505); May 8 (p. 651).

any herb or tree; such was the ignorance at that time. And as yet there was no English herbal, but one all full of unlearned cacographies and falsely naming of herbs.²

Two years later Turner left Cambridge for good (1540), the year in which Henry VIII founded the five regius professorships. Perhaps Turner left in disgust. A brother-in-law of Sir John Cheke, by name John Blyth, was elected to the chair of physic. He had already been graduated M.D. at Ferrara. Robert Record took the M.D. degree here in 1545, and settled down to teach. Lorkyn matriculated at Pembroke Hall in 1549. John Caius (born 1510) was by now a fellow of the College of Physicians and had made his great tour. In 1552 Miles Blomefylde, the alchemist, obtained at Cambridge his license to practise physic. Nicholas Carr, of Christ's College, afterwards of Pembroke Hall, first regius professor of Greek, took the M.D. degree in 1558. "He was obliged to resort to the study of medicine in order to maintain his wife and family, the stipend of the Greek professor being insufficient."³ In 1559 Hugh Glyn,⁴ M.D., gave to Caius College, now refounded, a folio edition of Galen, full of marginal notes. In 1564 Henry Walker, regius professor of physic, bequeathed to Caius College his library. Walker died in April, and Lorkyn succeeded him in the same month, the year and month of Shakespeare's birth. In August, when Queen Elizabeth visited Cambridge, a physic act was held in Great St. Mary's, at which she

²Cooper: *Atb. Cant.*, i, 256.

³Dictionary of National Biography. Carr's monument is in St. Giles's Church, Cambridge. (Cooper: *Atb. Cant.*)

⁴Glyn migrated to Chester in this year, and apparently sold his library. Lorkyn bought the "Amatus" from this library in this year for a shilling.

was present. Caius, Frere, and George Walker, took part with Lorkyn in the act. Timothy Bright, M.B., 1574, M.D., 1579, was a Cambridge resident at the time. His first medical work was written here and dedicated to the Chancellor, Lord Burleigh. Bright says of the Chancellor: "Cecil himself has paid so much attention to medicine that in the knowledge of the faculty he may almost be compared to the professors of the art itself."⁸

J. F. South in his "Craft of Surgery" says of the Company of Barber-Surgeons:

Through Elizabeth's reign the Company appears to have maintained one scholar in the University of Oxford and Cambridge at an expense to themselves of xls a year. After 1586, William Paris, who was student in Cambridge, was to have the pension during the pleasure of the Company. In 1587 "Thomas Yates shall have yearly during the well pleasure of the Master and Governors of the Mystery towards his maintenance in studie in the Universitie of Cambridge the some of xls and xxs in hand to buy him bookes."⁹

In 1591 John Banister, the London surgeon, gave to the University a casket containing an ivory skeleton and a boxwood anatomical figure.⁷ Among Lorkyn's Cambridge contemporaries we may also reckon Sir William Butler, who attended Henry, Prince of Wales. He survived Lorkyn thirteen years, and is buried in the same church.

Lorkyn bequeathed to the University "all his physic books or that appertained to physic, to be kept locked in the university library in a great cupboard." There was precedent for this. Strype tells us that Andrew Perne, the Dean of Ely, who had set himself to refurnish the university library:

Got Books from the Lord Keeper, the Bishop

⁸The Chancellor in 1568 recommended John Wolp, physician to the Earl of Sussex, for the M.D. degree. It was not conferred. (Baker MS., xxix, 364.)

⁹South, J. F.: *Craft of Surgery*, 149-151.

⁷Sir D'Arcy Power has reproduced this in the *British Journal of Surgery*, 1921, viii, 247-9.

of Winchester, and divers other Honorable Persons, as well as from the Archbishop. When Perne returned to Cambridge he was employed in making convenient Places and Receptacles for the Books of each Benefactor, that their Books might have Standings distinct by themselves; that so each Giver might be the better remembered to Posterity.⁸

There is a list, imperfect, of these books in the "Donor's Book" at the University Library. Lorkyn scribbled in nearly all his books and added his autograph monogram on the title. Fourteen volumes came from Carr's library, thirteen from that of his father-in-law, John Hatcher; gifts from his brother-in-law, Thomas Hatcher, the Provost of King's College, a volume of Rabelais from Andrew Perne, books with the autograph of William Cunningham. The unique copy of Thomas Muffet's dissertation, printed at Basle, is here with an autograph inscription. Six books contain the autograph of Nicholas Sympson, barber to Henry VIII. Sympson's portrait occurs in Holbein's picture of the granting of the charter to the Company of Barber-Surgeons in 1540.⁹ Five books belonged to John Frere, M.D., of Padua, and of King's College, afterwards president of the College of Physicians. Richard Sherman, M.D., of Caius College, gave Lorkyn the *Rhasis* of 1511. Charles Parker gave him a book in 1559. Lorkyn's old tutor, Antony Mayhew, "qui obiit 19 Octobris 1559," gave him a book also (No. 131).¹⁰

The Serapion (No. 18) has a curious history. From the first autograph signature it would seem to have belonged to one of the two following:¹¹

⁸Strype: Parker, 484-6. Perne himself in 1509 left his "greatest black book" to be kept "in the inward library of the University in a chest with three keys" (Cooper: *Annals*, 58).

⁹Reproduced in J. F. South's "Craft of Surgery."

¹⁰Mayhew is buried in Little St. Mary's Church at Cambridge "near the pulpit on the south part." (Cooper: *Atb. Cant.*, i, 198.)

¹¹See Foster: "Alumni Oxonienses."

William Parkhouse, M.B., 1505.

John Parkhouse, M.B., Principal of Hart Hall, 1506.

From the second inscription I am hoping to find, through the same source,

Thomas Ware, M.A., 1511, of Oriel College, proctor in 1514; B.D., 1519; D.D., 1525, and provost of Oriel in 1530-8.

The biographical note in Gabriel de Tarrega (46) is of considerable local interest, as also the note in No. 34.

The motto used by Lorkyn in his books, "Voce et Odore," Mr. Jenkinson suggests, comes from the simile of a hound in full cry. It occurs upon his monumental brass also.

Cooper in the *Athenæ Cantabrigienses* misplaces Lorkyn's tomb in Great St. Mary's by reading "west" for "east." Mr. Archbold in the "Dictionary of National Biography" by error, makes Lorkyn rector of Little Waltham.¹²

Thirty-three of these entries refer to Galen, sixteen to Hippocrates, eight each to Gesner and Paracelsus and Jacobus Sylvius of Amiens. The name of Vesalius only occurs three times.

Lorkyn possessed apparently no MSS. He had eight incunabula, in eleven volumes:

Nicolaus Falcutius, 1-4.
Savonarola (J. M.), 5.
Rhasis, 12.
Avenzoar and Averroës, 18.
Sylvaticus, 23.
Saliceto, 26.
Largelata (Petrus de), 34.
Magninus, 218.

Of the books printed in the sixteenth century the places of printing are:

Lyons, 76	Hanau, 3
Basle, 61	Florence, 2
Venice, 37	Leipzig, 2
Paris, 20	Nuremberg, 1
Antwerp, 19	Padua, 1
Strasbourg, 14	Naples, 1
Cologne, 9	Mainz, 1
Zurich, 8	Ingolstadt, 1

London, 4	Helmstadt, 1
Frankfort, 4	Louvain, 1
Geneva, 1	Dillingen, 1
Total.....	278
Not included.....	2
Not known.....	1
	281

It is remarkable that only four should be English books. Lorkyn specialized in foreign ones as the English were presumably easier of access. Dr. Singer has pointed out to me that scientifically in the second half of the sixteenth century England was distinctly backward. Lorkyn's library, tested by Malgaigne's preface to the works of Paré,¹³ is a satisfactory collection. Half the authors mentioned are here.

Dr. Singer, in a letter to me, speaks of Lorkyn as "including in his library works of the spagyric school." Lorkyn died in 1591. The earliest use of the word "spagyric" given in the New English Dictionary is 1593.¹⁴

Lorkyn's library and work may be tested by a comparison with that of his contemporary John Caius. The two men do not appear to have been sympathetic. Caius in his "De libris suis" (1570) has left one of the most interesting books ever written. He traveled far and saw everybody. Lorkyn left one small treatise of ten leaves and never traveled at all. Lorkyn's monument is his library.¹⁵

ADDENDUM

Attention should be drawn to a paper by my friend W. M. Palmer, M.D., on "Cam-

¹² *Oeuvres complètes d'Ambroise Paré*. Par J. F. Malgaigne. Tome 1. Paris, 1840, 8 vo. I am indebted to my friend Mr. G. E. Wherry for drawing my attention to Malgaigne's masterly preface.

¹⁴ For the definition of this word see R. Le Baillif's "Dictionarium," printed at the end of the works of Paracelsus published at Geneva in 1658. "Spagyrice vel spagiria est ars quae purum ab impuro separare docet." According to the New English Dictionary, Paracelsus was the coiner of the word.

¹⁵ A copy of Lorkyn's will is in the British Museum (Harl. MS. 7030). Thomas Tallis was one of the witnesses.

¹² See Newcourt: *Repertorium*, ii, 634, note.

bridgeshire Doctors in the Olden Time."¹⁶ This contains a good account of Lorkyn, and the rest of his library, as well as of his relatives. Also Dr. Arnold Chaplin's lecture on "The History of Medical Education in the Universities of Oxford and Cambridge, 1500-1850," delivered to the Royal Society of Medicine in April, 1920,¹⁷ which was unknown to me when I followed him in December. For the first reference I am indebted to Sir H. D. Rolleston, for the second to Dr. Singer.

THOMAS LORKYN'S GIFT, 1591

- 1-4. NICOLAUS (FALCUTIUS), *Sermones medicinales*, 4 vols., Venetiis, 1491, F°. Inc. 3. B. 3. 68. Hain *11768.
"Thomas Lorkyn, M.D., 1561." (MS.) Contemporary binding, probably at Cambridge. See E. H. Minns: Hand-list (stamps 22, 23, 24, 27, etc.).
5. SAVONAROLA (JOH. MICH.), *Practica*, Venet., 1486, F°. Inc. 3. B. 3. 67. H* 14481. Proctor 4819.
6. VESALIUS (A.), *De humanis corporis fabrica*, Basileae, 1555, F°. N* 1. 1 (A).
- 7-8. GESNER (C.), *Historia animalium*, 3 vols., Tiguri, 1551, F°.
9. ———, vol. 4 (G. Rondeletii et P. Bellonii *De aquatilibus*) *Ibid.*, 1558, F°. Cf. N* 1. 19-21 (A).
10. AVICENNA, *Liber canonis*, Basil., 1556, F°. 1566? Cf. N* 1. 14 (A). Probably sold as duplicate.
11. BRASAVOLA (ANT. MUSA), *In octo libros aphorismorum Hippocratis et Galeni*, Basil., 1541, F°. N* 3. 13 (B).
"Nicolaus Briareus." (MS.) "Nicolaus Simpson." (MS.)
12. [RHASIS] *Practica*, J. Arculani, Venetiis, 1493, F°. H* 13899.
13. MATTHIOLUS (PET. AND.), *In Dioscoridem*, Venet., 1558, F°. N* 7.5 (B).
14. RUELIIUS (J.), *De natura stiprium*, Basil., 1537, F°. "R. W." binding of R. Way. N* 3. 11 (B).
15. TURNER (WILL.), *Herbal*, Cologne, 1568, F°. Missing in 1804. [N* 7. 11] Another copy in Sel. 3. 9.
16. TURNER (WILL.), of the bathes, Cologne, 1562, F°. Missing in 1804. [N* 7. 11] Another copy Sel. 3. 9.
17. AETIUS, *Contractae*, Per J. Cornarium *Latine conscripti*, Basil., 1542, F°. N* 7. 27 (C).
18. SERAPION (JOHANNES), *Practica* [cum aliis, Venet., 1490] *Venetiis*, 1503, F°. Bound with Avenzoar cum *Colliget-Averrois*, Venet. 1490, F°. The entry in the Donor's book is "Jo. Serapionis *Practica*, Venetiis, 1490." But this is corrected as above in MS. Oo. 7. 73.
Liber Parkhows pr. vis "Werus iam possidet." Recovered December 3, 1920 by Mr. E. Burrell. For John Parkhouse, B. Med., principal of Hart Hall 1506-10, and William Parkhouse B. Med. 6 Feb., 1505. See Foster: *Alumni Oxon.* HAIN *2186.
Ta. 52. 1. Not in Panzer.
19. SERAPION (JOHANNES), *De simplicibus*, Averrois de iisdem. *Rasis de iisdem*, etc., Argentorati, 1531, F°. Without Lorkyn's mark. N* 8. 1 (C).
20. VEGA (CHRISTOPHORUS A), *De arte medendi*, Lugduni, 1564, F°. "Nicolaus Carrus." (MS.) N* 3. 21 (B).
21. WECKER (J. J.), *Medicinæ utriusque syn-taxæ*, Basil., 1576, F°. "Voce et odore trahor, T.L." (MS.) N* 7. 6 (B).
22. VILLA NOVA (ARNALDUS DE), *Opera*, Lugd., 1532, F°. "Richard Gossene." (MS.) N* 7. 7 (B).
23. SYLVATICUS (MATT.), *Opus pandectarum cum Simone lanuense*, etc., Venet., 1499, F°. With MS. drawings. Inc. 3. B. 3. 68. Proctor 4840. H* 15199.
24. MESUE (JOHANNES), cum expositione Mundi, Christophosi de honestis, Petri ap-poni, Francisci de pedemontium, Antidotarium Nicolai cum expositione Plat-tearii; J. de S. Amando, *Servitoris*, Saladini, Lugd., 1510, F°. Astrological and medical notes in English. N* 7. 29 (C).

¹⁶ *Cambridge Ant. Soc. Proc.*, xv, 200-279.


¹⁷ *Proc.*, xiii, 83-107. Section of the History of Medicine.

25. GUAINERIUS (ANT.), *Practica*, Venet., 1508, F^o.
"Emanuel." (MS.)
N* 7. 28 (B).
26. SALICETO (GUIL. PLACENTINUS DE), *Summa*, Venet., 1490, F^o.
Inc. 2. B. 3. 45. H* 14145.
27. MARCELLUS, *De medicamentis empiricis*. Per J. Cornarium. Item C. Galeni, Basil., 1536, F^o.
"T. L. ex dono magistri Hollandi." (MS.) Query George Holland? See J. F. South's "The Craft of Surgery," pp. 112, 118-120.
N* 7. 38 (C.).
28. CONSTANTINUS AFRICANUS, *Opera*, Basil., 1536, F^o.
Sel. 3. 100.¹
29. CLEMENTINUS (CLEMENTIUS), *Lucubrationes. adiecimus Richardum, Antonium de Gradis, Christopherum Barsisium*, Basil., 1535, F^o.
Sel. 3. 100.²
30. AURELIANUS (CAELIUS), *Passiones. Oribasi Opera*, Basil., 1529, F^o.
Sel. 3. 100.³
31. THADDEUS FLORENTINUS, *Expositiones in Ipocratem et Joannitium*, J. B. Nicollini edidit. Venet. 1527. F^o.
N* 8. 7 (C).
32. Concoregio (Joh. de), *Practica*, Venet., 1521, F^o.
N* 8. 36¹ (C).
33. Tornamira (J. de), *Practica*, Venet., 1521, F^o.
N* 8. 36² (C).
34. LARGELATA (PETRUS DE), *Cirurgia, Venetiis*, 1497, F^o.
"In fenestris aulae coll. regine
1. Sancta dei genetrix mea sis precor crux itiatrix.
2. Has quia suxisti fili veniam precor isti.
3. Vulnera queso pater id quod cogitat mea mater.
4. Gnate petita dabo, quod vis volo nulli negabo.
(MS. by T. Lorkyn.)
Inc. 3. B. 3. 85. H. 1637.
35. [CAULIACO (G. DE), *Chirurgia parva*.] *De oculis Jesu Hali, De oculis Canamusali*, Venet., 1500, F^o.
Inc. 3. B. 3. 85. H. 4813 (part).
36. THORER (ALBAN), *De re medica* (Soranus, Oribasius Sardinus, Plinius, Apuleius, A. Musa), Basileæ, 1528, F^o.
Sold.
[N* 8. 32¹ (C).] Two other copies in U.L.C.
37. SANCTA SOPHIA (GALEATI. DE), *In nonum tractatum Rhasis*, G. Kraut edidit, Haganoë, 1533, F^o.
N* 8. 32² (C).
38. BRUNFELSIUS (OTHO), *Onomastikon, Argentorati*, 1534, F^o.
N* 8. 32³ (C).
39. RUELLIUS (J.), *Veterinariæ medicinæ libri 2*, Paris, 1530, F^o.
"Nicolaus Carrus." (MS.)
N* 3. 17¹ (B).
40. ZUINGGER (THEOD.), *In Galeni de constitutione artis medicæ*, 3 Pt., Basil., 1561, F^o.
N* 3. 17² (B).
Thomas Moffet (see No. 207) was a pupil of Zwinger (Schuster and Shipley, p. 219). See also No. 139.
41. COITER (VOLCHER), *Externarum et internarum humani corporis partium tabulæ*, Noribergæ, 1573, F^o.
With plates.
N* 3. 17³ (B).
42. VASSAEUS (LOD.), *In anatomen corporis humani tabulæ quatuor*, Paris, 1541, F^o.
"In me reclamatur morbus physicus." (MS.)
N* 3. 17⁴ (B).
43. RYFF (GUALT. H.), *Omnium humani corporis partium descriptio*, Argentinae, 1541, F^o.
With cuts and MS. notes.
N* 3. 17⁵ (B).
44. FERRARIUS (JO. MATT.), *de Gradi, Practica*, Lugd., 1527, F^o.
N* 9. 5 (C).
45. PALMARIUS (JUL.), *De morbis*, Paris, 1578, 4^o.
N* 9. 15 (D).
46. GABRIEL DE TARREGA, *Opera brevissima*, 5 Pts., Lugd., 1524, F^o.
"Ex dono mgri Longworth." T. L. on title of Part 4.
" 1. Dr. Hauforde, vice-chancellor
2. Dr. Beamonte
3. Dr. Stokis
4. Dr. Harvie
5. Mr. Leedes
6. Mr. Hutton
7. Mr. Longworth
Dr. Perne
Dr. Fulke
Dr. Maie
Dr. Caius
Dr. Perie
Dr. Baker
Dr. Eithell
[At end of book.¹⁵]
- testes isti } testimonia Laudabilia mihi dederunt."

¹⁵The year of Dr. Hawford's vice-chancellorship is 1563. The testimonia were for the professorship. The note must have been made after 1572, the year of Fulke's degree.

1. Hawford (Edmund), S.T.P., master of Christ's College, 1559-1581.

2. Beaumont (Robert), S.T.P., master of Trinity 1561-1567.

- N* 9. 4 (C).
47. GALENUS (C.), *De diebus decretoriis*, Latine per J. Lalamentium, Lugd., 1560, 4°.
"N. Carrus." (MS.)
N* 9. s (D).
48. CARDANUS (H.), *Somniorum Synesiorum*, Libri 4, etc., 2 Pts., Basil., 1562, 4°.
"Joh. Hatcher." (MS.)
N* 9. 53 (D).
49. BAVERIUS (J.), *Consilia*, per G. H. Ryff, Argent., 1542, 4°.
N* 11. 3 (D).
50. BENEDICTUS (ALEXANDER), *Omnium morborum signa*, etc., Basil., 1539, 4°.
"Joannis Hatcher." (MS.) With his book-stamp five times. 
N* 10. 22 (E).
51. ALTOMARI (DONATUS ANT.), *De medendis febribus*, Venet., 1569, 4°.
N* 9. 51 (D).
52. ALTOMARI (DONATUS ANT.), *Opuscula*, Venet., 1561, 4°.
"N. Carrus." (MS.)
N* 10. 21: (D).
53. FALLOPIUS (G.), *De morbo Gallico*, a. P. A. A. Materate, Add. A. Fracanciani tractatus, Patavii, 1563, 4°.
"N. Carrus." (MS.)
N* 10. 21¹ (D).
54. TRIVERIUS (H.), *Comm. in Hippocratem*, Lugd., 1551, 4°.
"Jo. Hatcher." (MS.)
N* 9. 48 (D).
3. Stokis (John), S.T.P., President of Queens' College, 1560-1568.
4. Harvey (Henry), LL.D., Master of Trinity Hall, 1560-1584.
5. Leedes (Edward), Master of Clare Hall, 1562-1572.
6. Hutton, (. . . .) Query: John Hutton of Queens' or Robert Hutton of Pembroke Hall? (*Atb. Can.*, i, 261.)
7. Longworth (Richard), S.T.P., master of St. John's, 1564-9.
- Perne (Andrew), Master of Peterhouse, 1553-1589, dean of Ely.
- Fulke (William), S.T.P., 1572, master of Pembroke Hall, 1578-1589.
- May (John), M.D., Master of St. Catharine's Hall, 1559.
- Caius (John), M.D., Master of Caius College, 1559-1573.
- Porie (John), S.T.P., Master of Corpus Christi College, 1557-1569. See W. G. Searle "Queens' College," i, 278-9.
- Baker (Philip), A.B., Provost of King's College, 1558-1569.
- Itthell (Thomas), Master of Jesus College, 1563-1579.
55. SERENUS (QUINTUS), *De re medica*, G. Humelbergii Comm., Tiguri, 1540, 4°.
N* 9. 49 (D).
56. HEYL (CHRO.), *Artificialis medicatio*, in Galeni librum de artis medicæ constitutione. Methodi, autore Bertrutio Bononiensi. Quædam ex Ioanne de Sancto Amando. Index in Mesuæi & Nicolai Antidoraria. Mogunt. 1534. 4°.
In stamped binding: "Nisi Dominus edificavit domum," etc.
Rel. c. 53. 5.
57. CAULIACO (GUIDO DE), *Chirurgia*, Addita recepta per Thuram de Castello, Bonon. [Lugd. c. 1510], 4°.
N* 10. 41 (D).
58. MONTAGNANA (BARTH.), *Consilia et A. Cermisoni. Tractatus a F. Caballo*. [Lugd.], 1525, 4°.
N* 10. 23 (D).
59. OPIANUS, ALIEUTRICON, C. Plinii, P. Jovii de piscibus, J. Caesarius edidit, Argent., 1534, 4°.
N* 11. 5 (E).
60. MONTUUS (HIER.), *Halosis febrium*, Lugd., 1558, 4°.
N* 9. 13 (D).
61. WOLFIUS (CASPAR), *Gynaeciorum libri*, Basil., 1566, 4°.
Trolulæ s. Erotis, N. Rochei, L. Bonacioli, J. Sylvii, Moschiori opera.
N* 9. 50 (D).
62. SOLO (GERALDUS DE), *Practica super nono Almansoris*, etc., Lugd., 1504, 4°.
"Joannis Baryte." (MS.)
N* 11. 4 (D).
63. TARENTA (VALESCUS DE), *Practica cum J. de Tornamira introductorio*, Lugd., 1516, 4°.
"Scriptum in sigillo Platonis
Facilius est movere immotum quam quietare motum.
In sigillo Aristotelis
Sapientior est qui quod novit abscondit quam qui propalat quod nescit.
In sigillo Socratis
Inimicus hominis insipientia eius.
In sigillo Senecæ
Secretum meum mihi." (MS.) T.L.
"Ex dono Magri Caroli Parker, 1559." (MS.) T.L.
N* 11. 59 (E).
64. BRUELE (GUALTER), *Praxis medicinæ*, Lugd. Bat., 1589, 8°.
"Voce et odore" (MS.) and notes by T. L. (Arguments for and against matrimony in old age, in Latin.)
N* 15. 43 (F).

65. RHAZIS, *Opera parva, Additus est Liber Divisionum Rasis et Constantini Monachi Viaticum*. 2 parts. Lugd. 1511, 8°. Wants the viaticum.
"Thomae Lorkyni liber ex dono Richardi Sherman." (MS.) [Richard Sherman, M.D. of Caius College, 1567.]
N* 14. 37 (F).
66. ALTOMARI (DONATUS ANTONIUS AB), *Ars medica*, 2 parts, Lugd., 1559, 8°. "Nicolaus Symponus." (MS.)
67. ÆGIDIUS, *Carmina de urinarum iudicii. Cum comm. Gentilis de Fulgineo*. Ed. per Avenantium de Camerino, Basil., 1529, 8°. "Deo duce. Nosce Leipsum. Comite fortuna. Dies dabit." (MS.) T. L. "Homo est arbor eversa." (MS.) T. L.
N* 12. 33 (F).
68. ALEXANDRINUS (JULIUS), *Galenī Enantionaton liber*, Venet., 1548, 8°. N* 15. 9 (F).
- 69-71. BRUNFELSIUS (OTHO), *Theses rei medicæ*, 3 vols., Argent., 1532, 8°. N* 15. 23-25 (F).
72. BOKELIUS (JOH.), *Anatome*, Helmstadii, 1585, 8°. "J. H." (MS.) [Hatcher.]
N* 15-41 (F).
- 73, 74. CARDANUS (HIER.), *Ars parva*, 2 vols., Basil., 1566, 8°. "Joannes Hatcher." (MS.) "Voce et odore" (tom 2). (MS.)
75. CAIUS (J.), *Opera*, Lovanii, 1556, 8°. Engraved portrait of Caius, aet. 43, on p. 4. Contemporary stamped binding.
N* 15. 39 (F).
76. CRATO (JOHN), *In C. Galeni libros*, Basil., 1563, 8°. "H. G." (MS.) [H. Glyn.] See No. 124.
N* 16. 8 (F).
77. EUCHYON (DIOD.), *De polychymia* [Basil.], 1567, 8°. N* 15. 35 (F).
78. ENCHIRIDION rei medicæ, Tiguri, 1555, 8°. Contemporary stamped binding. Two-headed eagle.
N* 14. 38 (F).
79. FALLOPIUS (GABR.), *Observationes anatomicae*, Colon., 1562, 8°. Contemporary stamped binding.
N* 15. 22 (F).
80. GALLUS (PASCHALIS), *Bibliotheca medica*, Basil., 1590, 8°. N* 14. 41 (F).
81. LOPIUS (GARCIAS), *Comm. de varia rei medicæ lectiones*, Antv., 1564, 8°. "N. Carrus." (MS.)
N* 14. 25 (F).
82. RONSSEUS (BALD.), *De magnis Hippocratis lienibus etc.* (J. Wieri de scorbuto.), Antv., 1564, 8°. N* 14. 25² (F).
83. MONARDUS (NIC.), *De secunda vena in pleuriti, etc.*, Antv., 1564, 8°. N* 14. 25³ (F).
84. FERRERIUS (AUGERIUS), *De pudendagra, etc.*, Antv., 1564, 8°. N* 14. 25⁴ (F).
85. GARLANDIA (JOHN DE), *Compendium alchimiae, etc.*, Basil., 1560, 8°. N* 15. 37² (F).
86. RULANDUS (Mart.), *Hydriatrice, Dilingae*, 1568, 80. N* 15. 37² (F).
87. ORTA (García de), *Aromatum et simplicium apud Indos historia*, Lat. per C. Clusium, Antv., 1567, 8°. With cuts.
P* 6. 54 (F).
88. HOLLERIUS (JAC.), *De morborum curatione*, Ed. D. Jacobii, 3 pts., Paris, 1565, 8°. Contemporary binding.
N* 12. 25 (F).
89. HOLLERIUS (BLASIUS), *Morborum curandarum brevis institutio*, Basil., 1556, 8°. "Medicus omnibus dignitate aequalis." (MS.)
N* 15. 21 (F).
90. PETRUS HISPANUS, *The treasury of health*, London [Ab. 1550], 8°. Contemporary binding. Blank shield as nos. 128, 129.
Syn. 8. 55. 46. ULC 1088.
91. JOUBERT (LAURENT), *Medicinae practicae priores libri tres*, Genevae, 1572, 8°. "Liber Joannis Freri, xvjd." (MS.) Contemporary binding: a rose.
N* 13. 8 (F).
92. LOMMIUS (JOD.), *Medicinales observationes*, Antv., 1560, 8°. N* 16. 11 (F).
93. MATTHIOLUS (PET. ANDR.), *Epp. medicinalium libri quinque*, Lugd., 1564, 8°. N* 12. 28 (F).
94. PALEA (ANGELUS), *In Antidotarium J. Mesue* (Edd. Ang. Palea et Bart. ab Urbe-veterum.), Lugd., 1546 (1545), 8°. Contemporary stamped binding: roll (Oxford?).
N* 12. 26 (F).

95. BRASAVOLA (ANT. MUSA), *Examen omnium simplicium medicamentorum*. Add. Aristotelis Problemata, Lugd., 1544, 8°. "Mr. Ebdons boke." (MS.) Contemporary binding: roll R.W. (R. Way). N* 12. 34 (F).
96. GESNER (C.), *Apparatus et delectus simplicium medicamentorum, ex Paulo Aegineta et Galeno*, Lugd., 1542, 8°. N* 12. 34² (F).
97. BRASAVOLA (ANT. MUSA), *De medicamentis*, Tiguri, 1555, 8°. "Hip. Aut inva aut ne noceas." Contemporary binding: stamp as Nos. 98, 101-2, 127, 137 and 268. N* 12. 36 (F).
98. BRASAVOLA (Ant. Musa), *Examen omnium electuariorum, etc.*, Venet., 1548, 8°. Two leaves of vellum MS of Claudianus (Saec. xiii-xiv) are used as end papers. Carefully written, containing Opera minora 25, 26, and 28. Contemporary binding: stamp as No. 96. N* 12. 35¹ (F).
99. BRASAVOLA (ANT. MUSA), *Examen omnium syruporum*, Lugd., 1540, 8°. N* 12. 35² (F).
100. MERCURIALIS (HIER.), *De morbis puerorum, De Venenis, Censura Hippocrateae*, 3 Pts. Basil., 1584, 8°. Contemporary binding: cameo of female bust. P* 6. 36 (F).
- 101, 102. MONTANUS (J. B.), *Opuscula*, Ed. Hier. Donzellini, 2 vols., Basil., 1558, 8°. Contemporary binding: stamp of Nos. 97, 98, etc. N* 12. 29, 30 (F).
103. MONTANUS (J. B.), *Consultationum medicinalium Centuria I*, Ed. Val. Lablino, Venet., 1556, 8°. N* 12. 31 (F).
104. MONTANUS (J. B.), *Consultationum medicinalium Centuria III*, Venet., 1559, 8°. Contemporary binding: trefoil. N* 12. 32 (F).
105. NONNUS (THEOPHANES), *De morborum curatione*, Per. Hier. Martium, Argent., 1568, 8°. Contemporary binding: fleuron. N* 12. 47 (F).
- 106-108. ORIBASIIUS, *Opera Latine* per J. B. Rasarium, 3 vols., Basil., 1557, 8°. N* 15. 13-15 (F).
109. PARACELSI (A. P. T.), *De secretis libri decem*, Per G. Dorn, Basil., 1570, 8°. N* 16. 16¹ (F).
110. PARACELSI (A. P. T.), *De summis naturae mysteriis libri tres* (etc.). Per G. Dorn, Basil., 1570, 8°. N* 16. 16² (F).
111. PARACELSI (A. P. T.), *Compendium, Cum scholiis per L. Suavium, J[acobum] G[ohorry] P[arisiu]m*, Basil., 1568, 8°. N* 16. 15¹ (F).
112. PARACELSI (A. P. T.), *De Tartaro libri septem*, Ed. A. a Bodenstein, Basil., 1570, 8°. N* 16. 15² (F).
113. PUTEI (FRANCISCUS DE), *Apologia in anatome pro Galeno contra And. Vesalii*, Venet., 1562, 8°. N* 15. 11 (F).
114. RUPESCISSA (J. DE), *De consideratione Quintae essentiae*, A. de Villa Nova, R. Lullius, M. Savonarola, Basil. [c. 1550], 8°. N* 15. 31 (F).
115. RORARIUS (N.), *Contradictiones, dubia et paradoxa in libros Hippocratis, Celsi, Galeni, Aetii, Aeginetae, Avicennae*, Venet., 1566, 8°. Contemporary binding: fleuron. N* 15. 16 (F).
116. HENER (RENATUS), *Adversus J. Sylvii calumnias, pro A. Vesalio*, Venet., 1555, 8°. N* 14. 32¹ (F).
117. FUCHSIUS (L.), *Cornarius Furens*, Basil. [c. 1557] 8°. "Joannes Hatcher." (MS.) N* 14. 32² (F). B.N.P.
118. FUCHSIUS (L.), *Adversus C. Egenolphi typographi Francofurtani calumnias*, Basil. [c. 1557], 8°. N* 14. 32³ (F).
119. LACUNA (ANDR.), *Apologetica epistola in Janum Cornarium*, Colon., 1557, 8°. "Jo. Hatcher." (MS.) N* 14. 32⁴ (F).
120. ROGANUS (LEO), *In Galeni libellum de pulsibus, etc.*, Neapoli, 1556, 8°. N* 14. 33 (F).
121. STRUTHIUS (J.), *Sphygmicae artis libri v*, Basil. (1555), 8°. Folding plate at end. "W. Cuningham." (MS.) Contemporary binding: fleuron. N* 15. 36 (F).
122. SIMONIUS (S.), *Synopsis de febrium natura. Examen a Brun. Seidelio [Lipsiae]*, 1577, 8°. N* 15. 26 (F).

123. THEOPHRASTUS, *De historia plantarum*, Th. Gaza interprete, Paris, 1529, 8°. Contemporary binding: five fleurons. N* 12. 10 (F).
124. VIGO (J. DE), *Opera in chyrurgia*, Add. *chirurgia Mariani Sancti Barolitani*, Lugd., 1531, 8°. P* 6. 7 (F).
125. AMATUS LUSITANUS, *Curationum Medicinalium Centuriae duae*, Paris, 1554, 16°. "H. Glyn." (MS.) "Emi a mgro. Glyn, 12°, 1559." (MS.) T. L. See No. 75. P* 14. 46 (G).
126. FRACASTORIUS (HIER.), *Desympathia*, etc., Lugd., 1550, 16°. Contemporary binding. P* 14. 43 (G).
127. BRASAVOLA (A. M.), *Examen omnium Catapotiorum*, Lugd., 1556, 16°. Contemporary binding: stamp of No. 96, etc. P* 14. 35 (G).
128. BRASAVOLA (A. M.), *Examen omnium Trochiscorum*, Lugd., 1555, 16°. Contemporary binding: blank shield as No. 90, etc. P* 14. 36 (G).
129. BRASAVOLA (A. M.), *Examen omnium Linctuum*, Lugd., 1555, 16°. Contemporary binding: blank shield as No. 90, etc. P* 14. 37 (G).
130. BRUNFELSIUS (OTHO), *Epitome totius rei medicae*, Paris, 1552, 16°. "Liber Joannis Freri," as No. 91. Interleaved. Contemporary binding: four fleurons. P* 14. 38 (G).
131. BACCHANELLUS (J.), *De consensu medicorum. Ejusdem in cognoscendis simplicibus*, 2 Pts., Lutetiae, 1554, 16°. "Anthonye Mayheus." (MS.) "Ex dono magistri Antonij Mayhew tutoris mei qui obiit, 19 octobris, 1559." (MS.) T. L. Contemporary binding: two-headed eagle, crowned; and four trefoils. P* 14. 41 (G).
132. GALENUS (C.), *De ratione curandi*, M. Akakia interprete, Lugd., 1551, 16°. Contemporary binding. N* 13. 46 (G).
133. GALENUS (C.), *Dissectionis Venarum comm. etc.*, A. Fortolo interpr., Basil, 1529, 8°. N* 13. 15¹ (G).
134. CURTE (MATT. DE), *Questio de Pleuritide*, [Matthaeus Curtius.] Lugd., 1532, 8°. N* 13. 15² (G).
135. PANTHELEON, *Pillularium*, Cautele Gabrielis Zerbi, Lugd., 1528, 8°. N* 13. 15³ (G).
136. Almenar (Joh.), *De morbo gallico*, Et. N. Leoniceni libellus, Lugd., 1528, 8°. Linacre was a pupil of Leonicenus. (Osler: T. Linacre, 16.) N* 13. 15⁴ (G).
137. GALENUS (C.), *Ars parva*, M. Acakia interprete, Lugd., 1581, 16°. Contemporary binding: stamp of No. 97, etc. Also monogram stamp "T.L." in shield, as in No. 268. N* 13. 45 (G).
138. VICTORIUS (BENED.), *Empirica*, Necnon C. Thomaii Compendium, Lugd., 1558, 16°. P* 14. 40¹ (G).
139. BAYRUS (P.), *De medendis malis* (Th. Zuingger praefatus est.), Lugd., 1581, 16°. See No. 40. P* 14. 40² (G).
140. AMATUS LUSITANUS, *In Dioscoridis de medica enarrationes*, Adnott. R. Constantini, etc., Lugd., 1558, 8°. With cuts. Query this copy? P* 6. 21 (F).
141. AMATUS LUSITANUS, *Curationum medicinalium centuriae quinta et sexta*, Venet., 1560, 8°. Contemporary binding: stamp as No. 97. N* 16. 9 (F).
142. AMATUS LUSITANUS, *Centuria septima*, Venet., 1566, 8°. N* 16. 10 (F).
143. GESNER (C.), *Compendium ex Actuarii Zachariae De differentiis urinarum, Universalis doctrina C. Galeni, Sylvula Galeni, Tiguri* [1541], 8°. N* 14. 5 (F).
144. ACTUARIUS, *De urinis*, A. Leone interpr., A. Thylesii de coloribus, P. Aeginetae de crisi, A. Leenij epistola, Basil., 1563, 8°. N* 13. 38 (F).
145. ACTUARIUS, *De medicamentorum compositione*, J. Ruellio interpr. Adj. succidaneorum medicaminum tabulam, per C. Gesnerum, Basil., 1540, 8°. "Mr. Wilkinson mihi hunc librum dedit." (MS.) N* 14. 6 (F).
146. CHAMPIER (SYMPHORIEN), [Practica nova, Lugd., c. 1517] 8°. Lacks title and colophon. Cf. B.N.P. catalogue. N* 11. 56 (F).
147. CHAMPIER (SYMPHORIEN), *Rosa Gallica aggregatoris Lugdunensis*, [Paris, 1518] 8°. N* 12. 52 (F).

148. BRUYERINUS (JO.), *De re cibaria*, Lugd., 1560, 8°. "N. Carrus." (MS.) Contemporary binding: five trefoils. P* 6. 10 (F).
149. CORNAX (MATTH.), *Medicae consultationis enchiridion*, Basil., 1564, 8°. N* 16. 37 (E).
150. COLUMBUS (REALDUS), *De re anatomica*, Paris, 1562, 8°. P* 6. 15 (E).
151. CHAMPIER (SYMPHORIEN), *Speculum Galeni*. Add. C. Africani therapeutica, Lugd., 1517, 8°. N* 15. 1 (E).
152. CHAMPIER (SYMPHORIEN), *Hortus Gallicus* etc., 2 Pts., Lugd., 1533, 8°. "Thomas Lorkyn" on the fly-leaf, and his monogram, with three variants not noted elsewhere. This is one of two examples noted of an alternative spelling by Lorkyn of his name. cf. No. 175. Contemporary binding: a fine example, in fresh condition, of the block binding in Renaissance style, of F. G. with the arms of England at top, monogram at base in shield, and two male bust medallions in the panel. N* 16. 26¹ (F).
153. CHAMPIER (SYMPHORIEN), *Periarchon*, Lugd., 1533, 8°. N* 16. 26² (F).
154. STEPHANUS (CAROLUS), *De re hortensi*, Lugd., 1536, 8°. N* 16. 26³ (F).
155. DODOENS (REMBERT), *Florum historia*, Antwerp, 1568, 8°. N* 16. 30 (F).
156. DODOENS (REMBERT), *Purgantium aliarumque herbarum historia*, Antwerp, 1574, 8°. N* 16. 31 (F).
157. DODOENS (REMBERT), *Trium priorum de stirpium historia commentariorum imagines*, Antwerp, 1553, 8°. N* 16. 28¹ (F).
158. DODOENS (REMBERT), *Posteriorum trium commentariorum imagines*, Antwerp, 1554, 8°. N* 16. 28² (F).
159. DODOENS (REMBERT), *Medicinalium Observationum exempla*, etc., Coloniae, 1581, 8°. The additions are by Ant. Benivenius, Valescus de Tarenta, Alex. Benedictus, M. Cornax, Aeg. Hertogius, Ach. Gassar. N* 16. 34¹ (F).
160. MENABENUS (APOLLONIUS), *De magno Alcen*, Item *historia cervi rangiferi*. Acc. R. Dodonaei epistola, Colon., 1581, 8°. N* 16. 34² (F).
161. DODOENS (REMBERT), *Frumentorum de historia*, Antwerp, 1566, 8°. N* 16. 29 (F).
162. DIOSCORIDES (PED.), *Euporista*, de curat-onibus, ed. a J. Moibano et C. Gesner, Argent., 1565, 8°. Contemporary binding: stamp of No. 96.
163. DESSENNIUS (BERN.), *De compositione medicamentorum*, Lugd., 1556, 8°. "Nicolaus Symponus me vindicat." Contemporary binding: stamp. N* 12. 46 (F).
164. FONTANONUS (DIONYSIUS), *De morborum internorum curatione*, Lugd., 1553, 8°. N* 16. 36 (F).
165. FERRERIUS (AUGERIUS), *Vera medendi methodus*, Lugd., 1574, 8°. P* 6. 24 (F).
166. MERULA (GAUDENTIUS), *Memorabilia*, Lugd., 1556, 8°. Not in 1738 catalogue.
167. GORDONIO (BERN. DE), *Lilium medicinae*, Lugd., 1550, 8°. N* 12. 39 (F).
168. GORDONIO (BERN. DE), *De conservazione vitae*, Ed. J. Bandisii, Lipsiae, 1570, 8°. "Lent my brother Hatcher Cygnea Cantio Le-landi." (MS.) T. L. [Thomas Hatcher, provost of King's College.] N* 12. 40¹ (F).
169. KATSCHIUS (JOH.), *De gubernanda sanitate*, Francof., 1570, 8°. Title printed in red and black. Joechoer: Fortsetzung (1810) iii, 123. N* 12. 40² (F).
170. LORKYN (THOMAS), *Recta Regula et victus ratio pro studiosis et literatis*, Lond., 1562, 8°.
171. CHAMPIER (SYMPHORIEN), *Epithome Galeni*, Lugd., 23 June 1516, 8°. "Liber Thomas Lorkyn ex dono Domini Morlei." (MS.) T.L. N* 11. 31¹ (E).
172. CHAMPIER (SYMPHORIEN), *Index in Arte parva Galeni* (Cathegorie Medicinales), 2 Pts. Lugd., 3, June, 1516, 8°. N* 11. 32² (E).
173. GALENUS (C.), *De ossibus*, Ferd. Balamio interpr., Lugd., 1535, 8°. Contemporary binding: roll. N* 15. 2¹ (F).

174. KUEFNER (JOH.), *Pharmacopolitieron* [Ingolstadt], 1542, 8°. N* 15. 2² (F). B.M.
175. GALENUS (C.), In Hippocratis De humoribus comm., I. B. Rasario interpr., Venet., 1562, 8°. "Thomas Lorkin" (sic). (MS.). cf. No. 152. N* 15. 10 (F).
176. HIPPOCRATES, Opera, per J. Cornarium Latina lingua conscripta. Paris, 1546, 8°. Contemporary binding, in two volumes: 5 trefoils, "R.S." [Sherman?], "Aut iuva aut non noceas." (MS.) A favorite motto in this collection. On fol. 301 of this book, the first in the second volume, Lorkyn gives his authority for the quotation "fol. 312, pag. 2," where it is in the text "ut iuves aut non noceas." N* 12. 21, 22 (F).
177. HIPPOCRATES, De aere, aquis et locis, ab Adr. Alemanno illustratus, Paris, 1557, 8°. N* 12. 23 (F).
- 178-182. GALENUS (C.), Epitomes sectio prima (-quarta) per Andr. Lacunam, et vita per eundem, 5 vols., Venetiis, 1548, 8°. Original binding with roll and five stamps. N* 15. 3-7 (F).
183. GALENUS (C.), Epitome omnium rerum in Comm. in Hippocratem, per And. Lacunam, Lugd., 1554, 8°. "Nicolaus Sympsonus." (MS.) Binding of No. 97, etc. N* 15. 8 (E).
184. MESUE (JOANNES), De re medica, Jac. Sylvio interprete, Lugd., 1548, 8°. Contemporary binding: seven floral stamps. (Oxford?) N* 12. 27 (E).
185. MIZALDUS (ANTON.), Secretorum agri enchiridion, Lutet., 1560, 8°. N* 12. 13¹ (F).
186. MIZALDUS (ANTON.), Alexikepus seu auxilii hortus, Ad haec Dioclis Caristii epistola, Lutetiae, 1565, 8°. N* 12. 13² (F). B.M.
187. MONTUUS (HIER.), Anasceues morborum tomus primus (-quartus), Lugd., 1560, 8°. N* 12. 3 (E).
188. MONTUUS (HIER.), Compendiolum curatricis scientiae, Lugd., 1556, 8°. "N. Carrus." (MS.) "Thomae Hatcheri liber." (MS.) "Lorkini ex dono fratris." (MS.) N* 12. 15 (F).
189. PISO (NIC.), De cognoscendis morbis, etc., Francof., 1585, 8°. Copper plate portrait of the author, aet. 52, on back of title. Contemporary binding: one stamp. N* 12. 2 (F).
- 190, 191. RONDELETIUS (GULIELM.), Methodus curandorum morborum, 2 vols., Paris [1563-4], 8°. N* 12. 16, 17 (E).
192. SYLVIVS (JAC.), Methodus medicamentorum, Lugd., 1548, 8°. N* 12. 18 (E).
193. TRINCAVELLIUS (VICT.), Enchiridion medicum, studio Andr. Christiani, Basil., 1583, 8°. N* 11. 54 (E).
194. VICTORIUS (BENED.), De morbo gallico, annectitur De curatione pleuritidis, Florent., 1551, 8°. N* 12. 24 (F).
195. TARANTA (VALESCUS DE), Epitome operis morbis curandis, auct. G. Desiderio, Lugd., 1560, 8°. Contemporary binding: one stamp. N* 16. 6 (E).
196. WECKER (J. J.), De secretis libri xvii, Basil., 1587, 8°. Contemporary binding: one stamp. N* 16. 43 (F).
197. VALLERIOLA (FRANC.), Observationum medicinalium lib. vi, Lugd., 1588, 8°. Contemporary binding: one stamp. N* 12. 20 (F).
198. VALLERIOLA (FRANC.), Comm. in Galeni De constitutione artis medicae [Lugd.], 1577, 8°. N* 12. 19 (E).
199. FUCHSIUS (LEON.), De curandi ratione, Lugd., 1553, 16°. With cuts. N* 13. 47 (G).
200. FUCHSIUS (LEON.), De componendorum miscendorumque medicamentorum ratione, Lugd., 1556, 16°. "Nicolaus Sympson." (MS.) N* 13. 48 (G).
201. FUCHSIUS (LEON.), Methodus seu ratio compendiaria, Lugd., 1550, 16°. N* 13. 49 (G).
202. MONTANUS (J. B.), In artem parvam Galeni explanationes, a Val. Lablino editae, Lugd., 1556, 16°. "Nicolaus Sympson." (MS.) P* 14. 39 (G).
203. HIPPOCRATES, Aphorismi et Praenotiones, Sententiae Aurel. Cornelijs Celsi, Lugd., 1555, 16°. "N. Carrus." (MS.) "Voce et odore. Doctrina et virtute." (MS.) N* 13. 53 (G).

204. LANGIUS (Jo.), *Medicinalium epistolarum miscellanea*, Basil., 1554, 4°.
"N. Carrus." (MS.)
N* 10. 42¹ (D).
205. LANGIUS (Jo.), *Secunda epistolarum medicinalium miscellanea*, Basil., 1560, 4°.
"N. Carrus." (MS.)
N* 10. 42² (D).
206. MENA (FERD.), *Methodus febrium omnium*, etc., 2 pts., Antwerp, 1568, 4°.
N* 10. 42³ (D).
207. MOFFETT (THOMAS), *De venis mesaraicis obstructis theses*, Praeside Felici Platero, disputabitur Prid. Kal. Jun., Basil., 1578, 4°.
"Cl. V. D. Thomae Lorkin, Hippocraticae veraeque Medicinae fautori, ejusdemque apud inclytos Cantabrigienses Professori Regio, Amico meo singulari et Praeceptoris colendissimo d.d. Thomas Moufetus, in aedib. Basiliensis Archiatri Hygiam et Therapeiam . . ." (MS.) This inscription is quoted in full by C. H. Cooper *Atb. Cantab* ii. He speaks of this copy as the only one known to him. Moffett was Plater's pupil.
N* 10. 42⁴ (D).
208. AVICENNA, *Liber canonis* (trans. a Gerardo Cremonensi), Venet., 1507, 4°.
Colophon: "Cum tractatu de virtutibus cordis trans. ab Arnaldo de Villa Nova ac etiam cum cantica trans. a Armegdo blasij de Montepesulano." See *Malgaigne*, xxvi.
N* 11. 18 (E).
209. JULIUS ALEXANDRINUS, *De medicina et medico dialogus*, Tiguri, 1557, 4°.
"Liber Joannis Freri." (MS.)
N* 11. 19¹ (E).
210. WIER (JOH.), *Medicarum Observationum rararum liber i*, etc., Basil., 1567, 4°.
N* 11. 19² (E).
211. JULIUS ALEXANDRINUS, *Antargentericorum suorum defensio*, adversus Galeni calumniatores, Venet., 1564, 4°.
N* 11. 19³ (E).
212. HIPPOCRATES, *Epidemiorum liber sextus*, L. Fuchsio interprete, addita est expositio, insuper Graeca, 2 Pts., Haganoë, 1532, 4°.
"William Bryght." (MS.)
N* 11. 37¹ (E).
213. JACCHINUS (LEON.) [In nonum librum Rhasis] (*Opuscula elegantissima*). 2 Pt. Basil., 1564, (1563), 4°.
Pt. 2 only.
N* 11. 37² (E).
214. NUENARE (HERMANNUS A), *De novo morbo quem vulgo sudorem Britannicum vocant*, Colon., 1529, 4°.
N* 11. 37³ (E).
215. PARACELSUS (THEOPH.), *De urinarum ac pulsium iudicii*, ejusdem *Physionomia*, Colon., 1568, 4°.
With wood-cut portrait.
N* 11. 37⁴ (E).
216. CASTRICUS (JACOBUS), *De sudore epidemiali quem Anglicum vocant*, Antwerp, 1529, 8°.
N* 11. 37⁵ (E).
217. MERCURIALIS (HIER.), *De morbis cutaneis etc.*, opera Pauli Aicardii, Venet., 1572, 4°.
"L. B." (MS.) "J. Hatcher." (MS.)
N* 11. 38¹ (D).
218. MAGNINUS, *Regimen sanitatis*, Lugd. [c. 1495], 4°.
Hain* 10482. Proctor 8705.
Inc. 5. D. 2. 40.
219. VIRDUNG (J. HASFURT), *Nova medicinae methodus*, ex mathematica scientia, Haganoë, 1533, 4°.
"Author medicus et astrologus." (MS.)
N* 11. 38³ (D).
220. TOLEDO (GONDISALVUS DE), *Opus aureum causas et curas febrium complectens*: Marsilii de Sancta Sophia, Galeatii de Sancta Sophia, Ricardi Parisiensis, Anthonii de Gradis, Christofori Barsisii, Lugd., 1517, 4°.
N* 11. 39¹ (E).
221. GARIOPONTUS, *Remediorum παραγωγι libri v*, etc., Basil., 1531, 4°.
N* 11. 39² (E).
222. APICIUS (CAELIUS), *De re culinaria*, P. Platinae Cremonensis, *De tuenda valetudine*, etc., Pauli Aeginetae, *De facultatibus alimentorum*, Alb. Torino interprete, Basil., 1545°.
N* 11. 42¹ (E).
223. MASSARIUS (FRANC.), *In nonum Plinii de naturali historia librum castigationes et annotationes*, Basil., 1537, 4°.
N* 11. 42² (E).
224. BIESIUS (NIC.), *Theoreticae medicinae libri sex*, Antwerp, 1558, 4°.
"Liber Joannis Freri." (MS.)
N* 11. 20 (E).
225. DORN (GERARD), *Fasciculus Paracelsicae medicinae*, Francof. ad Moenum, 1581, 4°.
"J. H." (MS.) [J. Hatcher?]
N* 11. 43¹ (E).
226. SEVERINUS (PETRUS), *Idea medicinae philosophicae*, Basil., 1571, 4°.
N* 11. 43² (E).

227. OLIVER (THO.), De sophismatum praestigiis cavendis admonitio, etc. De missione sanguinis in pueris ante annum decimum quartum, etc., Cantab., 1604, 4°. This book could not have belonged to Lorkyn. N* 11. 50¹ (E).
228. GALENUS (CL.), Passionarius, Lugd., 1526, 4°. A MS. prescription on the last page. N* 11. 50² (E).
229. THURINUS (ANDR.), De curatione pleuritidis per venae sectionem, etc., Lugd., 1537, 4°. N* 11. 50³ (E).
230. MORIENUS, De re metallica et occulta summae antiquorum medicina. Item Bernardi Trevirensis Responsio ad Thomam de Bononia, scholiis per Rob. Vallensem Rugl. illustrata, Paris, 1564, 4°. Syn. 7. 56. 13¹. B.M.
231. LULLIUS (RAIMUNDUS), De alchimia, Norimbergae, 1546, 4°. "Liber Hugonis Fayerelough in artibus magistris, ex dono eruditi et suavisissimi juvenis Di. Adami Cooperi sui." (MS.) Hugh Fairclough matriculated at Exeter College, Oxford, in 1585 at the age of 14 and became vicar of Montacute, county of Somerset in 1618. Adam Cooper matriculated at St. Alban Hall, Oxford, in 1592 at the age of 18, B.A. 1592-3, and studied logic for three years and more at Emmanuel College, Cambridge (Foster: *Alumni Oxonienses*.) This book cannot have belonged to Lorkyn. Syn. 7. 56. 13².
232. HIPPOCRATES, Nosomantica Hippocratea, Tho. Moufeti opera et labore, Francof., 1588, 8°. "Voce et odore." (MS.) T. L. See No. 208. N* 15. 12¹ (F).
233. ORIBASIIUS, Comm. in Aphorismos Hippocratis, J. Guinterii industria, Par., 1533, 8°. N* 15. 12² (F).
234. VARIGNANA (GUL. DI.), Secreta medicine, Lugd., 1533, 8°. N* 15. 12³ (F).
235. CARDANUS (HIER.), Contradicentium medicorum libri duo, add. de Sarza Parilia, de Cina radice, etc., acc., Jac. Peltarii contradictiones, 3 Pts., Paris, 1564, 8°. "Robertus Baker." (MS.) Peletarius the spelling on sub-title correctly.. N* 12. 44 (F).
236. DODOENS (REMB.), De stirpium historia, Ant., 1559, 8°. Ed. 2. Four leaves (sig. N.) pp. 269-445 + (1) only. N* 16. 33¹ (F).
237. GRATAROLUS (GUL.), Opuscula, Basil., 1554, 8°. "Pertinet ad Heytonumi am liber iste." (MS.) N* 16. 33² (F).
238. GERARDUS BERGENSIS, De praeservatione et curatione morbi articularis et calculi, Antwerp, 1564, 8°. "N. Carr." (MS.) N* 14. 28² (F).
239. SYLVIVS (JAC.), De morbi articularii curatione, etc., Antv., 1565, 8°. "N. Carrus." (MS.) N* 14. 28¹ (F).
240. DUNUS (THADDAEUS), Muliebrium morborum omnis generis remedia, Argent., 1565, 8°. "N. Carrus." (MS.) N* 14. 28³ (F).
241. GALENUS (CL.), Aliquot Opuscula nunc primum Venetorum opera inventa, Lugd., 1550, 8°. N* 14. 28 (F).
242. GALENUS (CL.), De humoribus, ex Greco in Latinum sermonem a Bern. Bertrando conversus, Argent., 1558, 8°. With Greek text. N* 14. 28⁵ (F).
243. MONTUUS (HIER.), De medicis ἐξαλόγοι, Lugd., 1534, 8°. N* 14. 28⁸ (F).
244. LOMMIUS (JOB.), De curandis febribus, Antv., 1563, 8°. N* 14. 29¹ (G).
245. SYLVIVS (JAC.), De febribus commentarius ex libris Hippocratis et Galeni, Venet., 1555, 8°. N* 14. 29² (G).
246. PARACELSUS (AUR. PH. TH.), Philosophia magnae Collectanea quaedam, per Ger. Dorne., Basil. [c. 1569], 8°. N* 14. 27¹ (G).
247. PARACELSUS (AUR. PH. TH.), De Meteoris, etc., ex vers. G. Dorn, 2 Pts., Basil. (1569), 8°. N* 14. 27² (G).
248. TREVISANUS (BERN.), De chymico miraculo, quod Lapidem Philosophiae appellat, Dionys. Zacharius de eodem. Per Ger. Dorneum, Basil., 1583, 8°. N* 13. 27³ (G).
249. BRIGHT (TIMOTHY), Hygieina, De sanitae pars prima, Lond. [1582], 8°. Timothy Bright, M.D., Cantabrigiensis. "J. H." (M.S.), [J. Hatcher.] N* 14. 24¹ (G). ULC 1656.
250. BRIGHT (TIMOTHY), Medicinae therapeuticae pars: de dyscrasia, Lond., 1583, 8°. "J. H." (MS.) [J. Hatcher.] N* 14. 24² (G). ULC 1641.
251. ALBERTUS MAGNUS, De formatione hominis, vel Secreta mulierum. Antwerp, 1538, 8°.

- "Dyuyd anno domini 1553." (MS.)
N* 14-24³ (G).
252. FLORENCE UNIVERSITY. *Novae academiae Florentinae opuscula. Adversus Avicennam et medicos neotericos, qui Galeni disciplina neglecta barbaros colunt.* Lugd., 1534, 8°.
Running title *Barbaromastix*. "J. Hatcher." (MS.)
253. HIPPOCRATES. *Aphorismorum sectiones septem* [Ex Franc.] Rabelasi recognitione, quibus ex Ant. Musae commentariis adj. et octavam, et quaedam alia, Lugd., 1543, 16°.
Praesagia et C. Gul. Copo Basiliensi interprete, Galeni ars medicinalis, N. Leoniceno interpr. With the Greek text of the Aphorisms. Preface by Rabelais.
"Thomas Lorkyn ex dono D. Perne Decani Eliensis." (MS.) "Aut iuva" etc.
Adv. 38 (H). P. P. Plan: Bibliographie Rabelaisienne (1904), p. 234.
Not in B.M. Catalogue (1894).
254. SYLVIVS (JAC.), *De medicamentorum simplicium delectu*, etc., Lugd., 1555, 16°.
N* 13. 43 (G).
255. SYLVIVS (JAC.), *Morborum internorum curatio*, ex Galeno et Marco Gattinaria, Lugd., 1548, 16°.
"Thomas Lorkyn, 1559." (MS.)
N* 13. 42 (G).
256. TRIVERIVS (HIER.), *Novi et integri comm. in Galeni libros de temperamentis*, Lugd., 1547, 16°.
N* 13. 44¹ (G).
257. TRIVERIVS (HIER.), *In Τεχνην Galeni comm.*, Lugd., 1547, 16°.
N* 13. 44² (G).
258. RYFF (WALT. HERM.), *Medicinae enchiridion*. Adj. A. Cornelii Celsi sententias, Argent., 1542, 16°.
N* 13. 37¹ (G).
259. RYFF (WALT. HERM.), *Iatromathematicae, hoc est, medicationis accomodate ad Astrologicam rationem Enchiridion*, Argent., 1542, 16°.
N* 13. 37² (G).
260. MIZAULD (ANT.), *Memorabilium centuriae ix. Et Democritus Abderita, de rebus naturalibus & mysticis. Cum Synesii et Pelagii comm. Interpr. Dom. Pizimentio*, Colon., 1572, 12°.
N* 13. 38 (G).
261. GANIVET (JEAN), *Amicus medicorum, cum opusculo, Coeli enarrant: et cum abbreviatione Abrahæ Auenezrae de luminaribus, & diebus criticis. Adj. Astrologiam Hippocratis*, Lugd., 1550, 16°.
N* 13. 41 (G).
262. SOCIO (NOBILE), *De temporibus et modis recte purgandi in morbis*, Lugd., 1555, 16°.
P* 14. 47 (G).
263. HIPPOCRATES, *Aphorismorum libri octo illustrati, ad verbum Nic. Leoniceni, per Joan. Lygaeum, Paris, 1551, 24°.*
"Thomas Lorkyn ex dono Fratris Thomae Hatcher." (MS.) contemporary binding: dolphin stamp.
P* 13. 54 (G).
264. DU PINET (ANTOINE), *Historia plantarum*, Lugd., 1567, 16°.
Not in the 1738 catalogue.
265. PICTORIUS (GEORGIUS), *Separati sermones in omnes affectus*, Basil., 1562, 16°.
"Liber Joannis [Freri?]" (MS.). At end an English MS. relating to a will and bond, naming John Alred, William Alred, and Elizabeth Alred.
N* 13. 14 (G).
266. GESNER (CONRAD), *Historia plantarum* [Basil., 1541 ?], 8°.
Pp. 281 + (15). Lacks all preliminary matter.
N* 13. 14² (G).
267. VICTORIUS (LEONELLUS DE), *Faventinus, Practica medicinalis, cum scholiis J. Kufneri. De ægritudinibus infantium. Appendix per G. Kufnerum iuniorum, 2 Pts.*, Lugd., 1554, 16°. "Aut iuva aut ne noceas." (MS.) T. L.
P* 14. 52 (G).
268. FERNELIVS (JOANNES), *Therapeutices universalis seu medendi rationis libri septem. Apud Jacobum Arbillum, 1569, 8°.*
"Aut iuva aut ne noceas." (MS.) T. L. Fernelius was a native of Amiens. Original binding with centre ornament of No. 96, and Lorkyn's monogram stamp "TL" in shield as in No. 138. MS. fragments of a noted breviary of the fifteenth century at the ends. On the paper flyleaf is the magic square in Lorkyn's writing:
- | | | |
|---|---|---|
| 2 | 9 | 4 |
| 7 | 5 | 3 |
| 6 | 1 | 8 |
- Not in B.M. nor B.N.P. catalogues, nor is the printer yet identified.
Not in the Donor's List.
N* 15. 20 (E).
- 269-271. ERASTUS (THOMAS), *Disputationum de nova Philippi Paracelsi medicina pars altera (tertia, ultima)*, [Basileae], 1572-3, 4°.
Part 1 not here. Three volumes remaining. "J. Hatcher. Bynde this in parch. with stryngge." (MS.) Lorkyn's monogram.
Not in the Donor's List.
N* 9. 43-45 (D).
272. POLYBIUS, *Opuscula in Latinum conversa, De tuenda valetudine, De seminis humani natura, De morbis. Albano Torino interprete. Basileae. 1544. 4°.*
Not in the Donor's List.
N* 10. 61 (E).

THE ROW OF BOOKS OF NICHOLAS GIBBARD OF OXFORD

By R. T. GUNTHER

OXFORD, ENGLAND

I AM indebted to my friend Dr. Singer for the suggestion, and to Mr. Sayle for a friendly approval of the idea that the publication of another list of the medical library of an Oxford doctor contemporary with Thomas Lorkyn could not but enhance the interest of both collections.

Nicholas Gibbert or Gibbarde, as he signed himself in one of his books, was some ten or twelve years junior to Dr. Lorkyn. He was elected to a demyship at Magdalen College, Oxford, in 1555; took his degree as bachelor of arts in 1561, master of arts in 1566, and bachelor of medicine with license to practice on December 17, 1571. He supplicated for the degree of doctor of medicine on January 30, 1576/7. He was a fellow from 1561 to 1569, and probably vacated on marrying a widow by the name of Jane.

A dispute between him and John Marmyon, of Ewelme, respecting the lease of a College farm was referred by the Privy Council, when at Woodstock in September 1577, to arbitrators.¹

The college ledgers show that he was a tenant of a college house and also acted as master of the almshouse, his duties being to open the door at all hours to the poor, to see to the "beds, coverlets and sheets" to "wasche honestlie all linnine as perteyneth to the church of the College," and to be responsible for the washing of table linen. For these duties he received a stipend of £4, 13 s, 4 d per annum.²

His will dated September 4, 1593, and proved October 27, 1608, is in the University archives. To his wife Jane he leaves "his house and lease over against Magdalen

College;" to his daughter he gives his lease and house in St. Mary's parish with all his land and goods, excepting his books, with his copyhold in Stanlake.

Item, I doe give all the rewe (sic) of bookes beginning from Hippocrates and Goollen to the ende of the shelve in my upper studie against St. Maries, my notebooks and writings excepted, to Magdalen Colledge, conditionallie that they be good unto my wif and childe in performinge of the coppie hould over against Magdalen Colledge.

Of the "rewe of bookes" left to the college there are now in the library the following which testify to the goodness of the college unto his "wif and childe," and to the value of the gift. They also show the character of a medical library of the time. They are all folios or large quarto volumes, many containing more than one treatise. Unfortunately but few are in their original bindings, the rest having been rebound soon after their accession. They came to the college in 1601 and the accounts show that seventeen volumes (perhaps Gibbard's) were bound by one Middleton for 57 s, 2 d, and thirty-nine were chained at a cost of 6 s, 6 d. In the complete list which follows, an asterisk indicates those works which are also found in Dr. Lorkyn's library.

- i. [GADDESSEN, JOHN OF], *Rosa anglica practica medicine*, Ven., Bonetum Locatellum, 1516.
- ii. RASIS, *Ad Almansor*, etc., pp. 1-109.
MANFREDUS, *HIERONYMUS*, *Centiloquium de medicis et infirmis*, pp. 110-112, Ven., Jacobus Pencius de Leucho, 1508.
MOYSES, RABY, *Aphorismi*, pp. 1-48, Ven., Jacobus Pencius de Leucho, 1508.

¹ *Acts of Privy Council*, vol. ix, 1894, pp. 23, 25.

² Ledger G. 1580-1592.

- iii. CELSUS, A. C., *Medicinae Liber*, Ven., Joan Rubeus Vercellensis, 1493.⁸
- 2*. CAULIACO, GUIDO DE, *Cyurgia*, Ven., 1513.
- 3*. i. THORER, A., *De re medica* (Soranus, Oribasius, Plinius, Apuleius, A. Musa), Basileae, 1528-9.
- ii. AURELIANUS, COEL., *Tardarum passionum*, Basil., 1529.
- ORIBASII, D., *Euporiston. Medicinae compend. Curationes. Trochiscorum confect.*, Basil., 1529.
- iii. THURINUS, A., *Opera*, Romae, 1549.
- iv. LONICER, A., *De Plantarum descriptione*, Francofurt, 1555.
4. i. BARBARUS, HERMOLAUS, In *Dioscoridem*, Coloniae, 1530.
- ii. [BRUNFELS, O.,] In *Dioscoridem historiam herbarum certissima adaptatio*, Argent., 1543.
- iii. INDAGINE, J., *Chiromantia*, Argent., 1534.
5. i. DIOSCORIDES, *De medica materia, De letalibus venenis*, Colon., 1529.
- ii. BARBARUS, HERMOLAUS, In *Dioscoridem*, Colon., 1530.
6. i. TACUINUS, *Sex Rerum. With ALBENEGNEFIT, De virt. Cib. et ALKINDUS De rerum gradibus*, Strasb., 1533.
- ii. TACUINUS, *Aegritudinum et morborum*, Argent., 1532.
- iii. SYLVIIUS, J., *Commentarius in Hippocratis elementa*, Paris, 1548.
- iv. CRESCENTIUS, P., *De Agricultura et Plantis*, Basil., 1548.
- 7*. i. MONTAGNANA, BARTH., *Consilia de Balneis Pataŭ*, Ven., 1535.
- ii. MATHIOLUS, JO., *De Gradi, Consilia*, Lugduni, 1535.
8. i. ARCULANUS, J., *Practica particularium morborum*, Basil., 1540.
- ii. GATINARIA, M., *Summi medici omnes. ASTIARIUS, BLASIUS, De curatione februm, LANULPHUS, C., De curatione februm, AQUILANUS, SEB., De morbo Gallico*, Basil., 1536.
- MONTAGNANA, BARTH., *De Balneis*.
9. i. MARCELLUS, *De medicamentis empiricis*, Basil., 1536.
- ii. [—], *Experimentarius medicinae* (Trotula, Oct. Horatianus, Hildegard, Oribasius, Theodorus, Esculapius), Argent., 1544.⁴
- iii. BOSCO, J. J. MANLIUS DE, *Luminare majus*, Ven., 1520.
- iv. QUIRICUS DE AUGUSTIS DE TERTHONA, *Lumen apothecarius*, Ven., 1520.
- 10*. i. CONSTANTINUS AFRICANUS, *Opera*, Basil., 1539.
- 11*. i. BRASAVOLUS (ANT. MUSA), In *Hippocratem et Galenum*, Basil., 1541.
12. i. TORINUS, A., *Paraphrases in A. Trallianum*, Basil., 1541.
- ii. DODOENS, R., *Histoire des plantes*, Anvers, 1557.
13. i. *Medici antiqui Latini*, Ven., 1547.
- ii. FUMANELLUS, ANT., *Opera*, Tiguri., 1557.
14. i. SAVONAROLA, J. M., *Practica major*, Ven., 1547.
- ii. SAVONAROLA, J. M., *Practica Canonica de Febris* (136 ff.), Ven., 1547.
- iii. SAVONAROLA, J. M., *De Balneis* (26 ff.), Ven., 1552.
- iv. OPTATUS, CAESAR, *De Hectica Febre* (19 ff.), Ven., 1552.
15. i. SERAPION, *De Simplicium medicamentorum historia*, Ven., 1552.
- ii. MYREPSUS, NIC., *Medicamentorum opus*, Basil., 1549.⁵
16. i. VALLERIOLA, F., *Enarrationes medicinales, Responsio medicinalis*, Lugd., 1554.⁵
- ii. RONDELET, G., *De Piscibus*, Lugd., 1554.
17. i. WOTTON, E., *De differentiis Animalium*, Lutet., Paris, 1552.
- ii. RONDELET, G., *De Aquatilibus*, Lugduni, 1555.
- iii. BELON, P., *L'histoire de la nature des oyseaux*, Paris, 1555.
18. i. JUNTA, T., *Scriptores de Balneis*, Ven., 1553.⁶
19. i. FUCHSIUS, L., *De componendorum . . . medicamentorum ratione*, Basil., 1555.
- ii. DESSENIUS, B., *De compositione medicamentorum*, Francofurti, 1555.
20. i. *De Chirurgia Scriptores*, Tagault, Haller, Sanct., Bologna.

⁸ With MS. notes. An inscription suggests that the volume formerly belonged to Exeter College Library to which it was presented by Mr. Jones, M.B.—On a flyleaf at the end is this record of ownership: "Codex Mri Joannis Rideri precium 7 s, 4 d." Early Oxford binding in stamped leather.

⁴ With marginal notes and additions to the index.

⁵ With MS. notes.

⁶ With MS. notes.

- Michel Angel, Galen, Oribasius, Gesner Tiguri, 1555.⁷
21. i. GALEN L. Fuchsius Interpret. Vols. i and ii Paris, 1554.
 22. i. GALEN, L. Fuchsius Interpret., Vol. iii Paris, 1554.
 - ii. FERNELIUS, JO., De abditis rerum causis, Paris, 1551.
 - iii. SYLVIUS, J., De signis omnibus medicis, Ven., 1548.
 - iv. SANCTA SOPHIÄ, GALEAT. DE, Opus medicinæ practicæ, Haganoæ, 1533.
 23. i. ARGENTERIUS, J., De morbis, Flor., 1556.
 24. i. MESUA, J., Opera, Ven., 1561.
 - ii. HERCULANUS, J., De febris, Ven., 1560.
 25. i. MATTHIOLUS, P. A., Epistolæ medicæ, Prague, 1561.
 - ii. BETUS, ANT. M., In quartam Fen Avicennæ, Bononiae, 1562.
 26. i. CORDUS, VAL., Annotationes in Dioscoridem, Argent., 1561.
 - ii. CARDANUS, HIERO, Opuscula, Basil., 1559.
 27. i. ARDOYNUS, S., De Venenis, Basil., 1562.
 - ii. PONZETT, FERD., De Venenis.
 28. i. VALVERDUS, J., Imagines partium corporis humani, Antw., 1566.
 - ii. VESALIUS, A., De humani corporis fabrica, Antw., 1565.
- ⁷With "Nicolas Gibbarde" as signature inside cover.
- iii. CORNARIUS, J., in Ped. Dioscoridæ De Materia Medica, Basil., 1557.
 - iv. RHEGINUS, G., Medicinæ exercitamenta, Lugd., 1564.
 - 29*. i. AVICENNA, Canones medicinæ, Basil., 1556.
 - 30-33. i. GALEN, Opera, Vols. i-iv, Ven., 1556.

With the exception of three books, Budaeus—"Communis lingua Graeca," Christus a Vega—"De arte medendi," and R. Lully—"Collectio," the whole of the Gibbert bequest is still in the library of Magdalen College.

The number of large books in the two libraries was about the same, but the Oxford man does not appear to have had any books of octavo size or smaller; certainly he did not mention any in his will. His books were mostly printed in Basle and Venice and there is not an English printed book in the collection.

Another and earlier benefactor to the college library was WILLIAM HASARD, fellow, who died in 1509, bequeathing two large medical folios still on its shelves, viz., Haly Abbas and Ardoynus, Venice, 1492, and Rhazes (with other writers), 1497.



MONTAIGNE AND MEDICINE

BY J. S. TAYLOR, M.D.

WASHINGTON, D. C.

(Concluded)

AS we discover how constantly the pleasures of travel were interfered with by recurrences of pain and suffering, we come to understand more clearly why Montaigne has so much to say about food and lodging on the road. His diet was naturally a matter of the greatest importance. In this light many of his strictures upon native inns and customs make it clear that Montaigne tried to be broad and just in his estimates. The sophistication of wine appears to have been carried on as a fine art even in Montaigne's day. He says:

I was forced here to drink new wine, as no other is to be had in these parts. By storing it in casks made of a certain wood, and by treating it with the white of eggs, they clarify it so that it looks like old wine, but it has a taste which is not natural.

I suspect that the apothecaries here, instead of fetching this water from Pistoia, where it is said to rise, make an imitation thereof out of ordinary water, for I found it had, in addition to its saltness, a very strange flavour.

Whether Montaigne tried the mud baths at St. Eleana is not stated. His description of them follows:

There are also rooms for dry heat, made in various fashions, but mud baths are what they chiefly use. This treatment is practised in a large bath below the bath-house and open to the sky, fitted with a machine by which the mud is pumped up to the house adjacent. Here are provided divers appliances of wood made to fit each limb—legs, arms, thighs and other parts—wherein the member to be treated is placed and the appliance filled with mud, which is renewed as often as is needed.

At Ferrara we get evidence of the police surveillance of houses of public entertainment. "On the door of every room in the inn is an inscription, '*Ricordati della boletta*,' [remember your passport] and immediately a stranger arrives he must needs send his name and the number of his attendants to the magistrate, who will then give orders for lodgment, but if this be not done no one will take them in." At Epinal the party had been refused admission to the "pretty little town" because of passing through Neuf-castel, "where the plague was not long since." Here the party had been annoyed by a long delay at the city gate on account of the required manifest and bill of health. Such papers seem to have been in demand in most of the towns visited.

At Bologna Montaigne found much to interest him and notes that among the Frenchmen who had come there to learn horsemanship and fencing the best pupil with the foils was a youth from Bordeaux. (At Padua he had found a hundred Frenchmen learning to fence and it annoyed him to find Rome literally thronged with his compatriots.) The pleasure of the stay was marred, however, by indisposition.

On the Saturday after dinner we saw a play by the comedians, with which M. de Montaigne was highly pleased, but from this, or some other cause, he was troubled afterwards with headache, a distemper which had not molested him for several years, but it passed away during the night. Moreover at this time he professed to be freer of pain in the kidneys than for a long while, and rejoiced in digestive powers as sane as when he returned from Banieres.

Going on by way of Florence [*vide supra*], he came to Siena after a long stage, the

longest recorded in the notes. To ride thirty-two miles after what he had been through seems temerity itself, but Montaigne held fast to the opinion that riding did him no harm and the constant change of scene and the charm of the road afforded him unflinching distraction from sad thoughts. He put up at the "Crown," a tavern still standing in 1852. There was no glass or even linen in the windows and this made Montaigne very anxious as he feared the night air.

VISITS TO ROME

On the last stage of the journey to Rome he started three hours before sunrise to traverse the Roman Campagna by daylight, a prudent measure as far as malaria was concerned, but inspired by the feeling that the cold air of the morning was hurtful to his stomach. He was "ill at ease till the sun came up." A ride of thirty miles brought him to the city gate where there were the usual difficulties over the quarantine because he had passed through regions where the plague was raging. Montaigne repaired at once to the "Bear" at the corner of the Via di Monte Brianza and the Via dell' Orso. This building, one of the few remaining medieval houses of the plainer sort, was still standing in 1870. It dated from the year 1300 but there is no ground for the popular belief that it had been patronized by Dante. In a day or two he removed to lodgings in the Via di Monte Brianza. It is the scribe who regrets they did not go to the "Golden Bowl" instead, where they could have enjoyed regal surroundings for the same price. Montaigne avoided it just because of the furnishings of silk and cloth of gold.

Gregorovius gives some interesting data about Roman hostleries. They centered mainly around the Campo di Fiori where the public executions which took place here. Montaigne went to see the execution of a

noted malefactor and in this connection mentions the practice in vogue of reviving people who had been tortured by applying the warm bodies of fowls just killed to flesh torn with pincers, or to the stumps of mutilated limbs. He tells how a few years before,



The Inn of the Bear, Rome.

some of the numerous Spanish or Portuguese residents in the city had associated themselves together for indulgence in certain immoral practices and that nine or ten of them were detected and sent to the stake. One of the popular inns, the "Cow," had belonged to Vanozza de'Cattanei, mistress of Pope Alexander VI. She also owned the "Lion" very near Montaigne's inn. The "Bear" was hard by the Piazza Fiammetta where Caesar Borgia's mistress had had her abode, and near the church where she was buried as an *bonesta mulier*. We cannot ascribe to the jaundiced eye of a sick man (during his two stays in the Eternal City Montaigne passed six or seven calculi and considerable gravel and had numerous at-

tacks of colic) the comments on the insignificant character of the Roman streets for they retained it down to our own day. The "Bear" was on the left bank of the Tiber and behind it was a congerie of narrow, unlit, ill-smelling streets worse than those of Paris before the time of Baron Haussman.

Montaigne found much to entertain and interest him. Many of his notes have a bearing on things medical. The Pope, Gregory XIII, then over eighty years old, he described as the most healthy and vigorous man possible for his years, troubled "neither with gout, colic, nor stomach complaints of any kind."

He saw a priest's attempt at exorcism in the case of a man possessed, melancholic and in a trance. The attendant had a napkin tied around his neck, and held him fast. When cured he turned him over to his friends and ordered him taken home. The priest explained to Montaigne that the devil to be driven out was a very obstinate one and that it would be a hard job. Only the day before he had relieved a woman of the devil—an unusually large one who, as he came out, made her vomit nails and pins and a bit of the devil's hairy skin.

On the 16th of March, after our return to Rome, I was taken to make trial of the Roman hot baths at St. Mark's, which have the best repute. I underwent a treatment of moderate strength, and, though I went alone, met with all possible respect. The usual custom is to take a lady as companion, who like yourself will be rubbed by the men in attendance. I learned here the composition of the unguent used for removing hair from the skin. It is made of two parts of quick lime and one of arsenic, blended with lye, and will have effect in less than a quarter of an hour after application. On the 17th I was troubled, not insupportably, with colic for five or six hours, and afterwards passed a large stone the shape of a pine kernel.

On March 13th an old Antiochan patriarch, an Arabian, and well versed in five or six of the languages of those regions, and quite ignorant of Greek or of the other tongues we use, a

personage with whom I had become very intimate, gave me a certain compound for the relief of my gravel, and written directions for the employment of the same. He bestowed it for me in a little earthen pot, where I might keep it ten or even twenty years, and assured me that I might anticipate a complete cure of my distemper by the first dose I should take. In case I might lose the writing he gave me, I will set down his instructions here. The drug should be taken at bedtime after a light supper; a piece the size of two peas should be mixed in lukewarm water, after having been crumbled in the fingers. This will make five doses, one to be taken every alternate day.

A HEBREW CEREMONY

Montaigne gives a minute account of a circumcision witnessed.

This ceremony takes place in the private house, the lightest and most convenient chamber thereof being chosen for the purpose. In this particular case, because the dwelling itself was ill suited therefor, the ceremony took place in the lobby by the door. As with us, a godfather and a godmother are provided for the child, whom the father names, and the circumcision is performed the eighth day after birth. The godfather seats himself on a table with a pillow on his lap, and the godmother brings to him the child and then withdraws, the child being swaddled after our own fashion. The godfather then loosens the bandages below, and the assistants and the one whose duty it is to perform the operation all begin a chant and continue to sing during the operation, which takes about a quarter of an hour. He who officiates need not be a rabbi, and any one of them, whoever he may be, will be anxious to discharge this duty, because they hold that frequent bidding to such a function is a great blessing: nay, they will pay to be called in, offering here a vestment and there something else useful to the child. Moreover, they believe that any one who may circumcise a particular number of children will enjoy a privilege after death, to wit, that the parts about the mouth will never be eaten by worms. On the table where the godfather sits they forthwith lay out plentiful provision of all instruments

necessary for this operation, and in addition to these an assistant holds in his hands a phial of wine and a glass. There is also an earthen brazier, at which the operator first warms his hands; and then the child, with the swaddling bands unloosed, is presented to him by the godfather, who holds it in his lap with the head towards himself. The operator then takes hold of the part and pulls forward the skin thereof with one hand and with the other thrusts back the fleshy substance and fixes a silver instrument on the skin. This instrument, kept close to the flesh within, holds the foreskin in proper position and prevents any injury to the other parts from the act of cutting. This done, he cuts off the skin and buries it at once in some earth, which along with other apparatus of the mystery is beside him, ready prepared in a basin, and then with his bare nails proceeds to remove any other particle of skin which may be left on the flesh. This operation is one requiring considerable skill and is somewhat painful, but it is quite free from danger and the wound is almost always healed after four or five days. The children cry as ours cry when they are baptized. As soon as the operation is done, the bystanders hand forthwith to the operator some wine, who, after having taken some of it into his mouth, sucks the bleeding flesh and then empties his mouth, repeating this act thrice. Then they give him in a wrap of paper red powder, which they call dragon's blood, and with this he dresses and covers the wound, and then binds up the same neatly with linen cut for the purpose. He is offered a glass full of wine which, according to report, he blesses by the words he speaks over it, and then drinks a mouthful. He next dips his finger in it and thrice lets the child suck some drops of wine therefrom. This glass they send as it is to the mother and the women of the family who are in some other part of the house, that they may finish the wine that remains. Then another, a third person, takes a silver instrument, made round like a tennis ball, with a long handle thereto, and pierced with little holes like our perfume boxes, and holds it first to the nose of the operator, next to the child, and last to the godfather. They believe that the odours therein help to strengthen and purify the soul for

devotion. The operator meantime bears the stains of blood on his mouth.

THE FLAGELLANTS

Montaigne was much impressed and mystified by the doings during Lent when people could be seen on the streets scourging themselves with ropes until their backs were raw and bloody. Some of the flagellants were not more than twelve or fourteen years of age, boys and girls. He calls it, "the most striking sight I ever saw." Their earnestness and apparent indifference to pain was remarkable; indeed, they seemed to enjoy it and "they might have been chattering about their matters, laughing, bawling about the street, running and leaping when there was so great a crowd that the procession fell somewhat into confusion."

Along with them went certain men carrying wine, which was offered to them now and again, and some of them took a mouthful thereof, and sometimes sweetmeats were given. The wine-carriers often took wine in their mouths and then blew it out and moistened therewith the lashes of the scourges, which were of cord, and were wont to become coagulated with the blood drawn to such an extent that it was necessary to moisten them in order to separate the thongs. They also blew the wine over the wounds of some of the victims. The appearance of their shoes and breeches suggested that they were people of mean condition, and that the majority of them had sold themselves to this service. Moreover, I was told that they were wont to grease their shoulders with a certain preparation, but the wounds I saw were so natural, and the scourging was so lengthy, that assuredly no medicament could benumb them to pain. And with regard to those who may have hired them, what profit would they get were this exhibition nought but trickery?

PASTIMES AND DISTRACTIONS

Montaigne dined with cardinals and other notables, attended the pageants of the church, visited ruins and galleries. A

public exhibition of horsemanship given by an Italian who had been for years held prisoner by the Turks afforded him great cause for astonishment. With a guide he faithfully made the round of all the sights. From his visit to the library of the Vatican he got the keenest satisfaction.

The ward in which Montaigne sojourned was where the courtesans were thickest and one of his diversions was to frequent their society. Rome was thronged with them. (At the close of the fifteenth century they numbered 5000 out of a total population of 100,000 people.)

These ladies charge as exorbitantly for the privilege of simple conversation (which was what I sought, desiring to hear them talk and to take part in their play of wit) as for the supreme favor and are just as niggard thereof.

Montaigne's chief pleasure was

The sight of the ladies, and especially the courtesans, who exhibit themselves behind their lattices with such refinement of trickery that I have often wondered at the address they display in attracting men's eyes. Often I have got down from my horse and induced some of these ladies to admit me, and have wondered how it was they contrived to make themselves appear so much handsomer than they really were. They have the art of letting a beholder distinguish them by whatever trait of theirs is most seemly; they will let you see only the upper part of the face, or the lower, or the side, veiling and unveiling according to the particular style of countenance, so that an ugly woman is never to be seen at a window. Each one takes her position there for the purpose of saluting and bowing to her acquaintances, who, as they go by, throw up many a glance.

He indulged in the same pastime in Florence.

I went out today alone to amuse myself by inspecting those ladies who may be seen by any one who may be so inclined. I saw those of the greatest note, but they were not of much account. The courtesans here stand at the doors of the houses to attract lovers, just as those of Rome

and Venice sit by the windows. They take their station at suitable hours, and may be always seen, some with large and some with small company, talking and singing in the streets . . . Their lodgings are all in one part of the city, and are wretched even for what they are, being in no way equal to those of the Roman or Venetian courtesans, any more than their occupants can compare with the aforesaid ladies in beauty, or grace, or carriage. If any one of them is minded to dwell outside these bounds she must not make herself conspicuous, and must hide her real calling under some fictitious one.

The question of segregation was discussed in his time. "Some say that to put down public stews is not only to disperse fornication into all places that was confined to one, but moreover, by the difficulty, to incite wild and idle people to this vice." (The Apology.)

In Venice, while at supper one evening, a messenger comes with a present of "a little book of letters which she had put together" from Signora Veronica Franca. Montaigne gives the servant two crowns. Signora Franca was married in her youth to a Dr. Paniza whom she left to take up the career of a courtesan, her name appearing in an official catalogue giving the names and residences of the *hetairæ* of the city. Later she became a dilettante in letters and cultivated the friendship of eminent writers and painters. In middle life she went in for religion and good works and tried to found an asylum for penitent women. She died at forty-five. The book in question was an assortment of letters from her personal correspondence and dedicated to Cardinal d'Este. This prelate was living near Padua in a very fine house belonging to a gentleman of that city. "He was sick with gout and had been there more than two months for the sake of the baths but more on account of the near vicinity of the ladies of Venice and all sorts of diversion." Fynes Moryson estimated the income of the Venetian government from

courtesans at 300,000 crowns a year. Montaigne was astonished at the way these women flaunted their charms and spent money on furniture and clothing.



The Villa Medici, Rome.

Montaigne made the tour of the walls of Rome which he rightly says can be done in three or four hours going at a foot pace, for it is only about twelve miles around; he listened with enjoyment to the sermons of popular preachers during Lent; went to Tivoli and Ostia, returning from the latter in a coach and suffering no discomfort—"a rare experience with me;" tried the local baths. The many charming gardens were a source of peculiar delight to him and he testifies to the liberality of the proprietors. "All these beautiful spots are free and open to anyone who may desire to enter therein. . . The vineyards are amongst the most beautiful features of Rome."

All these recreations kept me free effectually from melancholy, which is the death of me, and from irritability with which I was troubled neither without nor within doors. Thus I found Rome a very pleasant place of sojourn. . . Nothing is so adverse

to my own health as listlessness and sloth, and in Rome I was never without occupation. . . I find it, of all towns in the world, the one most filled with the corporate idea, in which difference of nationality counts least; for by its very nature it is a patchwork of strangers, each one being as much at home as in his own country.

"I know not how others find the air of Rome but I myself found it very pleasant and healthy . . . I never breathed air more pleasant or healthy to my temperament." He quotes a saying to the effect that Roman air is bad for the feet but good for the head. The Romans for the sake of health "find out the different characteristics of the various streets and quarters of the city and even of the suites of apartments in their houses . . .

Even those who live in hired dwellings maintain at great cost three or four houses so that they may shift at the proper season according to the advice of their physicians." If this is not strictly true today, it is a fact



Palace in the Villa Medici to which are accredited the winners of the Prix de Rome at the Paris Salon.

that certain sections of the city are reputed more healthy than others and that rental is largely in proportion to the number of windows that get the sun.

Montaigne enumerates the varieties and qualities of the meat, fish and vegetables obtainable in the pontifical city. "We tasted artichokes, beans and peas about the middle of March. . . The oil is so good that I never feel that irritation of the throat which always troubles me in France when I have partaken generously of it." Grapes were to be had all the year round.

At Loreto, Montaigne, who was "vastly entertained and interested" by what he saw and heard at the miracle-working shrine, received from "a rich young Parisian traveling with a large following" a circumstantial account, attested to by members of his suite, of how his diseased leg had been cured there in a former visit.

All the surgeons of Paris and Italy had been baffled, the patient had spent more than three thousand crowns, and his knee had been swollen, powerless, and very painful for the last three years. It grew worse, and more inflamed and red, so that he was thrown into a fever. For several days he had ceased to use any medication or remedy; when, having fallen asleep, he dreamt all of a sudden that he was healed, and that a flash of light seemed to shine around him. He awoke, cried out that he was cured, called for his servants, arose from his bed, and began to walk for the first time since he had been seized with this infirmity. The swelling of the knee disappeared, the shrivelled and half-dead skin got well from that time without any further remedy. Being now completely cured, he had come back to Loreto, his cure having been worked about a month earlier, while he was here. He had been in Rome while we were staying there. These were all the authentic facts I could collect from the discourse I had with him and with his people.

Montaigne put up votive tablets for himself, wife and daughter but one feels that he did this largely through his ever-present desire to be all things to all men. In Germany and elsewhere he left a wooden tablet bearing his name and arms in every inn where previous guests had observed this practice.

SEEKING RECOVERY IN EARNEST

We may conveniently insert here an account of the prolonged hydrotherapy Montaigne underwent at the health resort he esteemed above all others. He preferred to patronize abroad such spas as combined pleasant company, comfortable quarters and a variety of good food with the medicinal virtues of the waters. He found all these at the Baths of Lucca whose springs had been famous from Roman times. The Baths are beautifully located some twenty miles from the city of that name, at the confluence of two mountain streams whose ripples fill the valleys with music. Scattered about the steep hillsides covered with chestnut trees are hotels, villas and palaces connected by wide shady avenues and well-kept paths. "The rooms are pleasant and private . . . each set of apartments has a water-closet and a public and private entrance . . . From my chamber I could hear all night the gentle murmur of the river below."

Hither at a later date came Shelley, Byron, Charles Lever, the Brownings, Walter Savage Landor, Tennyson, and many other famous personages, not for the baths, but for the pure country air in the days before railroads had brought Switzerland, the Tyrol and the Engadine within easy reach of foreign sojourners in Italy.

In all, Montaigne spent nearly five months here and he has left us a minute account of everything he did during his two sojourns. His initial experience was a disagreeable one. He was made very sick by a dose of cassia taken on the advice of his landlord, an apothecary, whom he pronounces much "lacking in intelligence compared with my apothecary in Rome." Montaigne had to forego his dinner and was laid up "for well nigh four and twenty hours and made a vow to take no more of the stuff. . . I would rather suffer from colic than have my stomach thus upset, my

taste ruined and my general health deranged by cassia."

He drank the water in large quantities after being told that this was the proper thing. It was tasteless and slow in its action.

Some take it in bed, the physicians giving special directions to keep the stomach and the feet warm, and to avoid all fatigue. People of the neighborhood have it conveyed to their houses three or four miles distant. As a proof that this water is not strongly aperient it may be noted that the apothecaries here keep a certain water brought from a spring near Pistoia, sharp on the palate and very hot when drawn from the well, which they give to patients before taking the native water, alleging that quicker and more efficient result is thereby induced . . . If I may give an opinion concerning these waters I would say they can do little harm or good; that they are ineffectual and feeble, and the fear is that they may inflame the kidneys rather than purge them . . . The bed of the stream from which the drinking water comes is red and coated with rust, wherefore, seeing that it was likewise very insipid, I concluded that it contained much iron and would be binding in its effect; indeed little came of what I took on this Thursday. Medicine, after all, is a poor affair. I said casually a little time ago that I repented having taken so strong a purge inasmuch as this water, finding vacancy within, acted as nutriment . . . The effect of this water upon me was an increase of strength, and I began to digest it half an hour after taking it; moreover, I made a good round of two miles on the way back to my lodgings. Perhaps this abnormal exercise may have made me feel young again. Every other morning I had gone straight back to my room to avoid the chill of the morning air, my house not being more than thirty paces from the spring . . . Some of the people here take three or four grains of coriander in every glass of water they drink, as a remedy for wind. On the Easter of May 14th I took more than five pounds' weight of the water of Bernabo, my glass holding somewhat more than a pound.

On Tuesday, May 16th, according to the

local custom, which seems to me an excellent one, I gave over drinking the water and remained in the bath an hour or more, having settled myself right under the conduit-pipe, because in the other parts of the bath the water seemed somewhat chilly. Being troubled continually with wind in the epigastrium and the intestines, and in less degree in the stomach—albeit without pain—I suspected that this discomfort was caused by the water, wherefore I gave up drinking it. This morning I found the bath particularly agreeable, and could easily have taken a nap there. It did not produce perspiration, but I had myself well rubbed, and then went to bed for a while.

On Thursday I was a little more on the alert and bathed somewhat earlier. In the bath I sweated fairly well and gave my head a douche under the spout. The bath left me rather weak, with a feeling of heaviness about the reins, and I voided gravel continually and some phlegm likewise as if I had drunk of the spring, indeed it struck me that this water used in the bath produced the same effect as when drunk . . . Here I observed a marked result of the use of this bath, forasmuch as my brother (M. de Mattecoulon) who had never passed any gravel either in common way or while drinking the water at any other bath in my company, now passed a large quantity . . . On Monday morning I went somewhat late to my bath, as I was shaved and had my hair cut, and I bathed my head more than a quarter of an hour by holding it under the principal spout . . . And as to shaving the head, the custom here with all was to be shaven, and then put a piece of satin on the head, held only by a sort of net, but my smooth pate had no need of this . . . At times I felt my eyes dazzled when I exerted them in reading or gazing on any glittering object. I was greatly troubled thereanent, remembering that I had suffered from this weakness ever since I was seized with headache at Florence, that is to say, heaviness about the forehead without any pain; a haziness before the eyes which, though it did not limit my vision, disturbed it in a way I cannot describe. Since this time this headache had recurred twice or thrice, and now became more persistent, but left me free otherwise. But after I used the douche to my head it came

back every day, and my eyes watered freely, but without pain or inflammation. Moreover, until I had this attack I had not suffered from headache for more than ten years; and, fearing lest the douche may have induced this weakness of the head, I did not use it today—Thursday—and remained only an hour in the bath.

Hearing that it had a reputation for strengthening the liver and removing eruptions on the face he remarks: "A fact of which I made careful note as a service I would fain render to a most estimable French lady."

He found things much to his liking. Only at Bagnères were the lodgings better and that resort alone of all he had visited compared with it for beauty of situation. "People live more by rule at these baths than at our own and abstain rigorously, especially from drinks." Hour glasses were provided at each of the baths here. .

I slept and read as I was inclined, and when I went abroad I always found conversation in plenty with the people in the streets, who would be ready for a chat at any hour of the day; and then there were the shops, and the churches, and the market-place. Going about like this, from one country to another, I was never at a loss for material for the satisfying of my curiosity. And all this time I felt my mind at ease, as much as ill-health and old age would allow, and little prone to seize opportunities for disturbing itself from the outside world. The only loss I felt was that of a sympathetic companion, for, being alone, I had to enjoy all these pleasures by myself, and could not share them with another.

Montaigne enlivens his stay by giving a ball and goes into many minutiae about the selection of prizes for the girls and his method of allotting them. He joins the country people in their dancing to show himself democratic in spirit or, as he puts it, "so as not to seem over-ceremonious." His habitual politeness was never laid aside. "I used the same bath on the two following days, and on the 19th I went again and remained there two hours, rather

later in the day in order to allow a lady of Lucca the first turn, a just and proper rule being here observed to give the ladies the use of their bath at their convenience."

And now we have some reflections on physicians and a strange tale or two about their inefficiency.

Both of the springs did me much good wherefore I feel that I have been a gainer in refusing credence to those physicians who recommend their patients to give up drinking at once supposing that a cure be not effected the first day . . . I have just read concerning these waters in a book written by one Donati, a physician, his advice being to take a light dinner and a good supper; and, for my experience after drinking the water for another day, I decided that his view was the correct one. Franciotti, another doctor, controverts him in this and in divers other particulars. [Donati and Franciotti were physicians of Lucca who had published treatises on the Baths of Lucca.] . . . It diverted me to consider the various prescriptions given by physicians in different parts of Italy, so great was their antagonism, and this was especially marked in the matter of these baths and douches; indeed, out of twenty opinions no two were found to agree, but, on the other hand, the authors accused each other of murders of all sorts. . .

The aforesaid patient suffered great trouble through the strange action of wind, which was wont to issue from his ears with such force that he could not sleep, and when he yawned great volumes of wind would burst out from the same place. He declared that he could best ease his stomach by using as a clyster four large coriander comfits after moistening and softening them in his mouth, the relief being sure and speedy. He was the first person I ever saw wearing one of those big hats of peacock's feathers and covered with light taffetas; the crown, a good palm's height, was thick, and had within-side a coil of sarcenet made to fit the head so that the sun might not strike upon it. It was surrounded by a curtain a foot and half wide, to serve the purpose of our parasols, which indeed are very inconvenient to use on horseback.

The physicians are wonderstruck to see how

the majority of French guests here take the waters in the morning and baths the same day. . . . On the Tuesday I remained two hours in the bath, and held my head under the douche for a good quarter of an hour. At this time a Cremonese merchant living at Rome came to the bath. He was afflicted with divers strange infirmities, nevertheless he could talk and walk about and seemingly enjoyed his life. His chief infirmity lay in the head, his memory having perished, so he said, through some weakness thereof; for instance, after a meal he would not be able to say what dishes had been put before him. If he happened to leave the house on any business he must needs always come back ten times to inquire where was the place to which he was bound. He could hardly ever get through the paternoster. When he did get to the end of it he would begin it again a hundred times, never perceiving at the end thereof that he had begun, or at the beginning that he had finished. He had suffered from blindness, deafness, and toothache, and had, moreover, such an access of heat in the reins that he always wore a piece of lead over that region. For many years he had observed most strictly the rules laid down by his physicians in his case.

Of a certain judge who visited him he says:

Amongst other matters he told me a singular story about himself, how, through pricking the ball of the thumb with an artichoke¹ some years ago, he had like to have died from inanition, how on this account he fell into such a wretched state that he lay in bed five months without moving. As he lay all this time on the reins, they became so inordinately heated that a discharge of gravel was produced from which he had suffered for more than a year and from colic as well. At last his father, the governor of Velitri, sent him a certain green stone, which he had got from a friar who had been in India, and while he had this stone about him he suffered neither from gravel nor pain. He had been in this state for two years. As to the prick aforementioned the thumb and the greater part

¹In Hazlitt's translation the cause of the trouble is given as the sting of a beetle.

of the hand were useless, and besides this the arm was so much weakened that he came every year to the baths of Corsena to treat the arm and thumb with the douche, as he was now doing.

It was while here that Montaigne picked up a remarkable story about a man who was taken captive by the Turks and remained with them a long time so that he was given 'up for dead by his relatives. Finally he came home and at first was not recognized by his mother.

Then he made himself known to her, and after having been as it were lost ten or twelve years, kissed his mother, who shrieked aloud and fell senseless and showed no sign of life until the next day, the physicians being in despair of her. She came round at last, but she died soon afterwards, every one being of the opinion that this shock shortened her life.

A patient of some consequence, the nephew of a prominent cardinal, was taken sick and the case being obscure a consultation was held. Montaigne tells us that he laughed in his sleeve when the physicians in attendance waited on him with the request that he listen to their opinions and arguments because the patient was resolved to be guided entirely by his decision. "The same request was made to me with regard to other matters both here and at Rome."

He accepts the current story that a leper who bathed and drank the waters was cured.

MONTAIGNE'S CONDITION GROWS WORSE

Montaigne appears to have received no real benefit from his faithful and persistent health-seeking at the Baths of Lucca. His stay there was marked by much digestive disturbance, attacks of colic, headache, pains in various parts of the body and severe toothaches. After describing his sleepless nights with the latter he says:

On August the 25th my kidney troubles abated, and I found myself about as well as before, save that I had frequent pain both by

day and night in my left cheek, but it did not last long. I remember to have been troubled with the same pain when at home. On the 27th I was so sharply troubled with toothache after dinner that I sent for the doctor, who, when he had taken account of all the symptoms, and had marked especially that the pain subsided while he was there, decided that this was no material fluxion, but one extremely subtle, and little else than wind which ascended from the stomach to the head, and, having mixed itself with the humours there, caused this disorder. This opinion seemed to me reasonable, seeing that I had often suffered from similar seizures in other regions of my body.

A mood of discouragement was the result.

It would be too great cowardice and squeamishness on my part if, knowing that I am every day in danger of death from these ailments, and drawing nearer thereto every hour in the course of nature, I did not do my best to bring myself into a fitting mood to meet my end whenever it may come. And in this respect it is wise to take joyfully all the good fortune God may send. Moreover there is no remedy, nor rule, nor knowledge whereby to keep clear of these evils which from every side and at every minute gather round man's footsteps, save in the resolve to endure them with dignity, or boldly and promptly make an end of them.

Naturally enough he now becomes inclined to disparage the waters.

I am sure this draught gave me the vapours and made my head ache, and on Tuesday I drank nine pounds from the common spring and felt my head affected immediately after. In sooth my head was in very bad case, having never recovered from the effects of the first bath I took. It has pained me less often of late, and in a different way, as it has not weakened me or dazzled my eyes as it did a month ago. I suffered chiefly in the back, and pain never attacked my head, but it flew to my left cheek, affecting all parts thereof, the teeth down to the very roots, the ear, and a portion of the nose. The pang would be brief, but as a rule sharp and burn-

ing and wont to attack me frequently both night and day. This is how my head fared at this juncture. I am firmly convinced that the fumes of this water both in drinking and in bathing—though I hold drinking to be the worse—are very bad for the head, and even worse for the stomach. And on this account the patients here are forced to take medicines to correct the action of the water. On the Thursday I gave up drinking and rode in the morning to see Costrone, a large village in the mountains.

On Sunday, September the 3rd, I spent more than an hour in the bath, and was much troubled by wind, but without pain. In the night and on Monday morning I had toothache so badly that I feared it must arise from a decayed tooth. I chewed mastic all the morning without relief. During the night I sent for an apothecary, who gave me some *aqua vitæ*, and bade me hold it to the spot where the pain was sharpest. The relief I got was marvellous; for, as soon as I took it into my mouth, the pain ceased; but as soon as I spat out the spirit the pain returned, wherefore I was forced to keep the glass always at my lips. I could not keep the spirit in my mouth continually, for, as soon as the pain was reduced, I would through weariness fall into a heavy sleep, and then some drops of the spirit would run down my throat and choke me so that I was forced to get rid of it. Just at daybreak the pain seemed to leave me.

On the Tuesday morning all the gentlemen staying at the bath came to see me as I lay in bed. I afterwards caused a plaster of mastic to be put on my left temple, where the throbbing pain had been worst, and had less pain during the day. At night they applied lint to the cheek and the left side of the head, and my sleep was painless though disturbed.

On the Wednesday I had constant toothache and pain in the left eye, and on Thursday I spent an hour in the large bath. This same morning there came to hand, by way of Rome, a letter from M. de Tausin, written from Bordeaux on August 2nd, in which he informed me that, on the preceding day, I had been chosen to be Mayor of that city by public choice, and begged me that, out of my good will for the city, I would take up this burden.

On his way to Florence he wrote:

This morning I felt my head heavy and my sight troubled, these being symptoms of those headaches with which I have been affected for the last ten years. This valley was formerly a morass, and Livy relates how Hannibal was forced to ride an elephant when he traversed it, and lost one of his eyes on account of the severity of the season: it is assuredly a flat and lowlying country and greatly at the mercy of the floods of the Arno. I refused to eat at dinner, but I repented of this, for had I eaten I might have vomited, and I always find the speediest remedy thereby. Otherwise I am troubled by my head for a day or two, as was now the case. The road was crowded with country-folk taking provisions to Florence where we arrived after crossing one of the four stone bridges, over the Arno, having ridden twelve miles.

Montaigne visited the famous Campo Santo at Pisa and reports the popular notion that the earth in which they were interred made bodies swell and decompose within forty-eight hours. "And this belief is a plausible one because in this particular cemetery bones are very rarely seen, scarcely any indeed, neither is there any place where they are collected and reinterred as in other cities."

Of the health of the city (destined later to be a favorite residence for English consumptives) he says:

Only a short time ago this city bore an evil name for its unhealthy air, but this is vastly improved since Duke Cosimo has drained the marshes by which it is surrounded. Formerly the place was so unhealthy that when the government wanted to banish any one, and at the same time get rid of him, they always banished him to Pisa, where in a few months the job was done. There are no partridges here, though the Duke has taken great pains to foster them.

I received several visits at my lodging from Girolamo Borro, a physician and doctor of philosophy, and when I went to see him on July 14, he made me a present of his book on the

flux and reflux of the sea, written in Italian. At the same time he showed me another book he had written in Latin on the diseases of the body.

Montaigne appears to have entertained considerable regard for Dr. Borro but probably chiefly in his capacity of professor of philosophy at the University of Pisa. Borro eventually came to the notice of the Inquisition and after prosecution at its hands was dismissed from the university and died six years later. In one of his essays Montaigne characterizes the doctor as "an honest man" which may be regarded as high praise from such a source.

On the 25th I paid a visit to Cornacchino, a famous Pisan physician and teacher. He lived according to a rule of his own, which differed vastly from the rules of his art. Immediately after dinner he would go to sleep and would drink a hundred times a day. He read to me some rhymes of his own, written in the Pisan dialect which were not unpleasing. According to him the baths near the city are of no great account, but he had a high opinion of those of Bagno Acqua, about sixteen miles distant, which he declared to be marvellously good for liver complaints, detailing to me some wonderful cures, and for the stone and colic as well. He recommended me, however, before taking these waters, to drink some of the Della Villa spring. He is of opinion that, after bloodletting, medicine has no curative agent to compare with baths, if only they be used with understanding. He also told me that at Bagno Acqua the lodgings are good, and that I might make myself very comfortable there.

Tommaso Cornacchini was a famous physician of Arezzo, and professor of medicine at the University of Pisa. One of his sons was also distinguished in medicine.

Regarding the waters of Pisa, Montaigne says:

I took a draught of it to test it, and found it lacking in taste and in smell also. I only detected a slight roughness on the tongue. It is scarcely warm at all and very pleasant to drink. I looked at the water as it flowed from the spout, and perceived therein the same minute particles,

white atoms, which had offended me at Baden, and which I judged to be some dirt come in from without. Now, I believe these atoms to be connected with the mineral properties of the water. . . . It is said to be good for the liver and for the eruptions caused by liver disorders. The same draught is prescribed here as at other baths, and exercise after drinking is commonly taken: or you may take a sweating bath, or use it in other forms. . . . This morning I passed another stone somewhat larger and looking as if it must have been detached from one much larger. God knows whether it is so. Let it be as he wills.

At Pisa we get an intimation that he had the ordinary sight-seer's weakness for souvenirs. Among other things, he bought a cup of Indian nut which he said was quite "as efficacious against the spleen and gravel as tamarisk." When he started back to France he shipped from Rome a case of things he had collected. Did it contain the two boxes of "all sorts of medicaments" which the people of Tivoli made from the "scum" of the sulphurous waters at Tivoli or had the medicaments been used up already? The case of curios was twenty days getting as far as Milan.

After Pisa he sought out the baths of Vignone, where he was troubled with orbital and frontal headache. Of Naviso he says:

The bath is likewise of great use to the sick people who come here in the spring of the year, and the man who hires it sells a quantity of the mud taken from the bath, which mud, when dissolved in hot oil, is good for the itch in human beings, and for scabby dogs and cattle, when diluted with water. The price of this mud when sold on the spot is two giulios a load, but they sell it also in dried balls for seven quattrini apiece. We saw here a lot of dogs belonging to Cardinal Farnese, which had been sent here for the bath.

At the baths near Viterbo he made his usual careful observations.

This water throws up a white scum, which hardens readily and becomes solid like ice,

making a crust on the surface of the water. If a linen cloth be dipped therein, it will quickly become loaded with this scum and quite stiff. This substance is sold into other parts for use in cleansing the teeth, and when chewed it has no more taste than earth or sand; indeed, the composition thereof is reputed to be the same as that of marble, in which case it might well harden in the kidneys. It is said, however, that the water which is exported in bottles has no sediment and remains quite clear. I imagine it

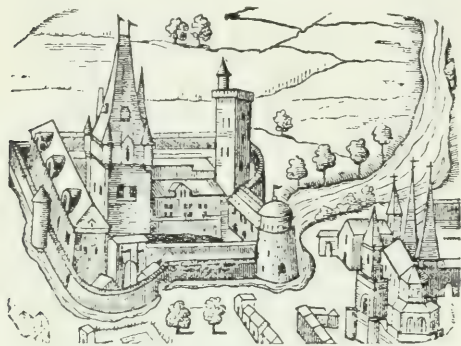


Montaigne's house at Bordeaux.

may be drunk in any quantity, and that the sharpness before named may give it a certain savour and make it easier to swallow. . . . I gathered faint hope of making a cure when I read an inscription on the wall, written by a certain man who cursed his physician for having sent him to such a place, and affirmed that he had suffered much ill from his stay there. Moreover, the proprietor hinted to me that I had come too late in the season, and certainly did not urge me to take the waters.

THE RETURN TO FRANCE

When Montaigne got word of his election as mayor of Bordeaux and received intimations from the king that he ought to accept he started home and traveled by forced marches, though not omitting to see all he could on the way. He was in Rome when the more urgent summons reached him. His daily rides frequently amounted to twenty and thirty miles. How vital to the invalid



The Fort du Hâ, opposite Montaigne's house in Bordeaux

was the condition of the roads! The high-ways of Tuscany had recently been improved and leveled by the Grand Duke and we can understand Montaigne's fervor in praying that God might reward him for this "work of the greatest service to the public." On leaving Parma "we changed horses at every post and for 2 posts I made them go at full gallop so as to test the strength of my loins. I felt no ill effects or weariness therefrom." These few words tell more than volumes of description. We picture a weary traveler tortured by the hardships of the road and his trying bodily ailments but never losing his pluck. He was taken sick the night he reached Siena.

I suffered for two hours from colic, and I fancied I felt the movement of a stone. Early on Thursday morning I went to see one Guglielmo Felix, a Jewish doctor, who talked to me some time as to my general rule of living with regard to my kidneys and the gravel. I then

left Siena, and was again troubled with colic for three or four hours. Then the pain came to a crisis, and I was assured that a stone must have passed. We travelled twenty-eight miles and supped at Ponteaclae, where I passed a stone bigger than a grain of millet, with a quantity of red gravel, but I suffered no pain. We left on the Friday morning, and halted sixteen miles along the road at Altopascio, where we stopped an hour to feed our cattle.

A consecutive perusal of his notes shows that Montaigne in spite of his diligent search for health was very much worse off when he left Italy than when he set out on his travels. That he consulted physicians in Rome, Pisa, Siena and elsewhere suggests that the repeated attacks of colic had somewhat mollified his prejudice against the profession and that the gravity of his condition was more and more borne in upon him. The failure to get any benefit from these gentlemen doubtless caused him to censure them with greater severity when he sat down once more to write essays at home.

He had previously gone from Venice to Padua by boat though "always somewhat in fear of water transit, being advised that it deranged his stomach, and now, being minded to ascertain whether the motion on this river, which indeed is most steady and uniform provided that the boat be drawn by horses, would cause him inconvenience, he made trial of it and found that he suffered no ill effects therefrom." In his essays he quotes from Plutarch, to whom he was most partial of all the ancient writers, to the effect that seasickness arose from fear but declares that this could not hold in his case for though very subject to seasickness he had no fear. Montaigne cites the case of animals who get seasick and mentions particularly hogs in whom there is no occasion to suspect the element of fear. He then goes on to say that he cannot long endure coach, litter or boat, or indeed any means of transportation except a horse. He found a litter less tolerable than a coach and

experienced no more discomfort from travel on the water when there was considerable motion than in calm weather. He says, "It is the interrupted motion which disturbs me and the more when it is mild. The physicians have directed me to apply pressure and encircle the lower abdomen with a cloth to remedy this discomfort, something which I had never resorted to being in the habit of struggling against the weakness which are in me and of conquering them by myself." Now he has not the vigor to endure seasickness and gives a variety of other reasons for excusing to himself the omission from his schedule of so important a place as Genoa.

I could not face the sea voyage on account of my weak stomach, and I shrank from the trouble of finding lodging in Genoa in its present crowded state, even more than from the discomforts of the journey by land. Moreover, I heard that the road from Genoa to Milan was haunted by thieves, and as I was exceedingly anxious to get home, I resolved to leave Genoa aside.

But in spite of everything the passion for sight-seeing survives.

I prolonged my journey by ten miles in order to see Pavia. On Wednesday, October 25th, I started early over a very good road, and during the way I voided a small soft stone and a good deal of gravel.

On the last day of October Montaigne started from Turin and prepared to cross the Alps, leaving the plain at Susa. He crossed the Alps partly on horseback and partly in a litter which four men carried on their shoulders, being frequently relieved by other sets of bearers.

Getting back to France Montaigne regrets some of the things left behind. "Here I began to appreciate the excellence of the Italian oil, of which I was never conscious after eating, but I found that the oil of these parts upset my stomach." At Lyons "on Saturday, Saint Martin's Day,

I had a sharp pain in the stomach and kept my bed till midday. I felt disordered all day and took no dinner and a very light supper." As he approached Clermont, where he tarried a day to spare the young horses lately bought at Lyons, there was evidence everywhere of the havoc wrought by the recent plague.

I heard some remarkable accounts thereof. The dwelling of the Seigneur of the town, the manor-house of the Canillacs, was burnt so as to destroy the pestilence with fire.

On Monday the 20th I started in the morning, and on the heights of Pui de Dôme I passed a stone, somewhat broad and flat. I had felt it all the morning and even the day before with a slight pain in the kidneys. It was neither very hard nor very soft. . . . As far as Limoges this road is badly furnished with inns, which, however, give you tolerably good wine, but they are used only by muleteers and couriers going to Lyons. My head was uneasy, the storms and cold winds and rain were very bad for it; and in sooth it got its fill of discomfort in this journey over a region where the winter is sharper than anywhere else in France.

Italy was not the only country where the inns furnished bad wine. "At Chastein, I was forced to drink new unclarified wine, as no other was to be had, and the next day went on five leagues farther." The account of the journey now becomes more and more succinct. Montaigne is evidently pre-occupied with thoughts of the civic duties he is about to assume and the narrative is little more than a statement of distances traversed each day. On the last day he rode 21 miles to reach the Château de Montaigne, "having quitted this same spot on June 22, 1580, to go to La Fère, my journey having lasted seventeen months and eight days."

CLINICAL RECORD OF THE JOURNEY

A review of Montaigne's physical condition during his journey across France to Germany, Switzerland, Austria and Italy,

reaching as far south as Rome, is startling. He was increasingly the victim of headache. He had pains and weakness of the eyes. Indigestion, manifesting itself as general malaise, vague abdominal distress or sharp pain, nausea, dizziness and flatulence, was frequent. Now and again distress in a limb hampered the freedom of his movements. Later came repeated attacks of toothache and facial neuralgia, especially of the orbital and frontal regions. From

time to time he is made sick by the treatment prescribed. Occasionally he is hoarse, catches cold, suffers from exposure to dampness, rain and cold, or has an annoying pruritus of the hand and other parts.

Added to these endurable discomforts were crises of renal colic varying from mere aching of the loins to the most acute torture, lasting from two to twenty-four hours. Some of them were "endurable," some "did not interfere" were "not unusually severe," not "more violent than usual." By others he was "grievously tormented" and some occasioned "violent agony." Again and again he voids gravel in "incredible amount," "continuously" or "much." The actual calculi passed averaged more than one a month for the whole period of the tour.

But the record of the days and nights deals with others than himself—the people he meets and what they say and do; the things he sees and hears and what thoughts they inspire. Pain and suffering are minimized at the time and forgotten the moment they are past. They do not even dim the prospect ahead, despite the clear indication

that the road must soon come to an end. The mental life was everything; the physical counted for nothing save as it benumbed his faculties for the moment. Truly here was an indomitable spirit, the temper of steel.

Montaigne is very precise in the analysis of his symptoms while taking the prolonged course of treatment at Bagni di Lucca, but elsewhere limits himself to saying that he had colic or headache, mild

or severe, and how long it lasted. In most instances when a stone is passed he describes it and, naturally, size and hardness are the features of chief interest. At Stertzing the calculus was medium-sized, crumbly, yellow



View of the Château Montaigne. The façade towards the courtyard.

with white center. The two at Plombières were small. At Venice the two stones were large. The calculi were often preceded, accompanied or followed by gravel as in Florence, the Baths of Lucca and Rome. A fortnight after his arrival in the latter city he was taken so ill that he submitted to treatment at the hands of the French physician in attendance on the Cardinal of Rambouillet, aided by a dexterous apothecary whom he later on remembers with gratitude and pronounces "intelligent." They gave him several large pills of cassia put into his mouth on the end of a wet knife. These acted freely on the bowels and the following day Montaigne took two pills of Venetian turpentine done up in a wafer and put into his mouth on a silver spoon along with some drops of syrup. The only effect he observed from this was that it gave to the urine the odor of violets.

After this, Montaigne took three times a drink which tasted just like almonds and he was assured it was nothing else; but he was convinced that it contained seeds of cucumber, melon, gourd and pumpkin. The indisposition continued unrelieved for about ten days when much gravel was followed by a large, long, solid, hard stone which took six hours in passing.

In all, while in Rome, Montaigne had five attacks of colic followed by one or more calculi. One of these was the size and shape of a pine kernel. In two of the attacks he passed "several."

At Bagni di Lucca hematuria was frequent and sometimes alarming. This symptom became almost constant after he reached home when the utmost powers of philosophy had to be summoned to replace hope. Hope had not been utterly renounced at the Baths of Lucca and there, noticing on one occasion that the renal output was less than one-fifth of the water ingested ("There's but poor reliance upon these physicians and their remedies"), he began careful estimates of what he drank and what he passed in twenty-four hours and soon was happy to notice that they tallied with each other. At the Baths he passed only two stones but much gravel and blood. He was convinced that the calculi were large when they left the kidney but became fragmented in the bladder. While here he makes the only mention of pain in the bladder. The period from August 15 to September 11, seems to have been one of continuous, severe suffering. Jaundice developed. The gravel passed was reddish, the urine full of blood. The stone passed on the 24th was preceded and followed by lively hemorrhage. The stone was the length of a pine nut, as wide as a bean, the largest he had yet passed. "I felt infinite delight when I had got rid of it, though the passage was very painful. . . . I knew very well that something unusual was at hand."

Montaigne was regular in his habits. "My stomach and I never fail of our punctual assignation which is at leaping out of bed, if some indispensable business or sickness do not interfere with us" but at Pisa he did not have a single movement except by the aid of medicine, "a bad and treacherous assistant." At Bagni di Lucca gaseous distention so distressed him that he took a clyster of oil, camomile and anise-seed water. It was administered with "great skill and address" by his landlord. This was followed by marchpane and four spoonfuls of wine and next day he felt infinitely better. Some of the gravel passed at the Bagni was red; some red outside and gray inside. Of the stones passed at Lucca one was small and rough, another was clearly but a fragment of a larger one and the third was red outside and white within; hard and rough. The stone passed near Viterbo was the size of a grain of wheat—small, hard and red. "To facilitate the exit of this sort of stone you would do well to stop the course of your water for a minute or two, for the increased force with which it comes forth afterwards greatly aids the progress of the stone. I got this hint from Monsieur Langon of Arsac." The one voided on the Puy de Dôme was large, long and flat, neither hard nor soft.

MONTAIGNE AND DEATH

During the eleven years of life that remained to him after his return from Italy, Montaigne was occupied with his official duties in Bordeaux, with annotating and expanding Books I and II of his "Essays," and with the composition of Book III. He died in his beloved château, September 13, 1592, and was buried in the church of the Feuillants, Bordeaux.

For three days before he died Montaigne was unable to speak and had to make his wishes known by signs or written words. The nature of his disability is not clear. The actual cause of death is given as a quinsy accompanied by paralysis of the tongue.

Did he have Angina Ludovici, was he merely afflicted with a complicating aphonia, was there a true edema of the glottis due to extension of the inflammation from neighboring tissues or to a manifestation of



Site of the original burial place of Montaigne in the apse of the church of the Feuillants, Bordeaux.

chronic disease of the kidneys in which much tissue change must have resulted from the many stones harbored by them? We do not know.

At all events he had friends and neighbors around him and a priest administered the sacraments so that Montaigne passed away in the conventional and accepted manner and perhaps this demise was more in harmony with the spirit of the real, inner man than the casual reader of his essays might suspect. Certainly he always professed a belief in God and a respect for the Church in its great essentials. In this he was neither illogical nor superstitious. Montaigne fully appreciated that the infinite is unknowable

and that to comprehend God, or even to be capable of a perfectly spiritual conception of Him is impossible. Besides this, he realized, with truly scientific insight, that any ultimate explanation of physical phenomena is beyond us. His scepticism, though real, was not synonymous with utter negation. He knew little but believed in God and admitted the obligation to recognize and worship Him in some fashion. Instead of rejecting everything, because he could not know everything, Montaigne fell back on the forms of worship, the external observances taught by the Church, considering them as good as any and as having the merit of wide acceptance and time-honored employment. In spite of the errors and crimes of the Church (he objected to roasting peoples' bodies for their supposed spiritual good) he selected its fashion of worship and the incidental ceremonial as the ones most pleasing to him. His religion was a pure monotheism and while he uses the word Christian, prefers the Lord's Prayer to any other and holds it a model and amply sufficient, and a distinct argument against importuning the deity with an infinity of requests for the gratification of petty personal wishes, and while he quotes from the New Testament, the direct references to Christ are few. Nothing in his writings implies that he enjoyed any very comforting belief in the vicarious suffering of Christ for sinners. He seems to have had a modified Hebraic bias harking back to the tenets of his mother's family.

Montaigne had found comfort in the veil that screens the future from us. Man must perform his allotted tasks unhampered by the thought that death may interfere and make all his beginnings vain.

Neither health, which I have hitherto ever enjoyed very strong and vigorous, and very seldom interrupted, does prolong, nor sickness contract my hopes. Methinks I scape every minute, and it eternally runs in my mind, that what may be done tomorrow may be done today.

Hazards and dangers do, in truth, little or nothing hasten our end; and if we consider how many more remain and hang over our heads, besides the accident that immediately threatens us, we shall find that the sound and the sick, those that are abroad at sea, and those that sit by the fire, those who are engaged in battle, and those who sit idle at home, are the one as near it as the other. (Study of Philosophy is to Learn to Die.)

How sudden and unexpected the advent of death may be, he illustrates from history.

To omit fevers and pleurisies, who would ever have imagined that a Duke of Brittany should be pressed to death in a crowd, as that Duke was at the entry of Pope Clement into Lyons? . . .

Æschylus, being threatened with the fall of a house, was to much purpose so circumspect to avoid that danger, when he was knocked on the head by a tortoise-shell falling out of an eagle's talons in the fields. Another was choked with a grape-stone: an Emperor killed with the scratch of a comb in combing his head. Æmillius Lepidus, with a stumble at his own threshold, and Afidius with a jostle against the door, as he entered the council chamber. . . Whilst Caius Julius the physician was anointing the eyes of a patient, death closed his own; and if I may bring in an example of my own blood; a brother of mine, Captain St. Martin, a young man, of three and twenty years old, who had already given sufficient testimony of his valour, playing a match at tennis, received a blow of a ball a little above his right ear, which, though it was without any manner or sign of wound, or depression of the skull, and though he took no great

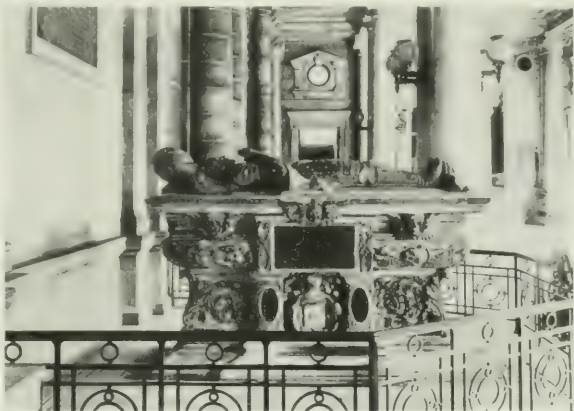
notice of it, nor so much as sat down to repose himself, he nevertheless died within five or six hours after, of an apoplexy occasioned by that blow. Which so frequent and common examples passing every day before our eyes, how is it possible a man should disengage himself from the thought of death; or avoid fancying that it has us every moment by the collar? What matter is it, you will say, which way it comes to pass, provided a man does not terrifie himself

with the expectation? For my part, I am of this mind, that if a man could by any means avoid it, though by creeping under a calveskin, I am one that should not be ashamed of the shift: all I aim at is to pass my time pleasantly, and without any great reproach, and the reactions that most contribute to it, I take hold

of, as to the rest, as little glorious and exemplary as you would desire. (Study of Philosophy is to Learn to Die.)

But still the anticipation of dissolution was a painful one and he summoned all his philosophy to the rescue.

Let us disarm him of his novelty and strangeness, let us converse, and be familiar with him, and have nothing so frequent in our thoughts as death; let us upon occasions represent him in all his most dreadful shapes to our imagination; at the stumbling of a horse, at the falling of a tile, at the least prick with a pin, let us presently consider, and say to ourselves, well, and what if it had been death itself: and thereupon let us encourage and fortify ourselves. Let us evermore amidst our jollity and feasting, set the remembrance of our frail condition before our eyes, never suffering ourselves to be so far transported



Tomb of Montaigne, transferred from the Church of the Feuillants in 1871 to its present site in the basement of the University.

with our delight, but that we have some intervals of reflecting upon, and considering how many several ways this jollity of ours tends to death, and with how many dangers it threatens it. . . . But moreover, nature herself does assist and encourage us. If the death be sudden and violent, we have not leisure to fear; if otherwise, I find, that as I engage further in my disease, I naturally enter into a certain loathing, and disdain of life. I find I have much more ado to digest this resolution of dying when I am well in health than when sick languishing of a fever. . . . But nature, leading us by the hand, an easy, and as it were, an insensible pace, step by step conducts us to that miserable condition, and by that means makes it familiar to us, so that we perceive not, nor are sensible of the stroke then, when our youth dies in us, though it be really a harder death, than the final dissolution of a languishing body, which is only the death of old age; forasmuch as the fall is not so great from an uneasy being to none at all, as it is from a spritely and florid being to one that is unwieldy and painful. The body, when bowed beyond its natural spring of strength, has less force either to rise with, or support a burden. . . . Death is the beginning of another life. So did we weep, and so much it cost us to enter into this, and so did we put off our former veil in entering into it. Nothing can be grievous that is but once, and is it reasonable so long to fear a thing that will so soon be dispatched. Long life and short, are by death made all one; for there is no long, nor short, to things that are no more. . . . Life in itself is neither good nor evil, it is the scene of good or evil, as you make it; and, if you have lived a day, you have seen all; one day is equal, and like to all other days; there is no other light, no other shade, this very sun, this moon, these very stars, this very order and revolution of things, is the same your ancestors enjoyed, and that also entertain your posterity.

. . . And come the worst that can come, the distribution and variety of all the acts of my comedy, is performed in a year. If you have observed the revolution of the four seasons, they comprehend the infancy, youth, virility, and old age of the world. The year has played his part, and knows no other way, has no new farce, but must begin and repeat the same again;

it will always be the same thing. (Study of Philosophy is to Learn to Die.)

A man may by custom fortify himself against pains, shame, necessity, and such like accidents; but, as to death, we can experiment it but once, and are all apprentices when we come to it. (Use Makes Perfectness.)

It is not without reason that we are taught to consider sleep, as a resemblance of death. With how great facility do we pass from waking to sleeping, and with how little concern do we lose the knowledge of light, and of ourselves! Peradventure the faculty of sleeping would seem useless and contrary to nature, being it deprives us of all action and sense, were it not that by it nature instructs us, that she has equally made us to die, as to live, and from life presents us the eternal estate, she reserves for us after it, to accustom us to it, and to take from us the fear of it. But such as have by some violent accident fallen into a swoon, and in it have lost all sense; these, methinks, have been very near seeing the true and natural face of death. Many things seem greater by imagination, than they are in effect. I have passed a good part of my age in a perfect and entire health; I say, not only entire, but moreover spritely and wanton. This estate, so full of verdure, jollity and vigor, made the consideration of sickness so formidable to me, that when I came to experiment it, I found the attacks faint, and easy in comparison of what I had apprehended. Of this I have daily experience; if I am under the shelter of a warm room, in a stormy and tempestuous night, I wonder how people can live abroad, and am afflicted for those who are out in the field: if I am there myself, I do not wish to be anywhere else. This one thing of being always shut up in a chamber, I fancied insupportable: but I was presently inured to be so imprisoned a week, nay a month together. And have found that in the time of my health, I did much more lament the sick, than I think myself to be lamented when I am so, and that the force of my imagination enhances near one-half of the essence and reality of the thing. I hope that when I come to die I shall find the same, and that I shall not find it worth the pains I take, so much preparation and so much assistance as I call in, to undergo the stroke.

Death has some forms that are more easy than others, and receive divers qualities, according to every one's fancy. Amongst the natural ones, those that proceed from weakness and stupidity I think the most favorable: amongst those that are violent, I can worse endure to think of a precipice than the fall of a house, that will crush thee flat in a moment, and a wound with a sword, than a arquebus shot: and should rather have chosen to poison myself with Socrates, than stab myself with Cato. (Of Vanity.)

Our very insignificance should palliate death.

Few men die in the opinion that it is their last hour, and there is nothing wherein the flattery of hope does more delude us. It never ceases to whisper in our ears, others have been much sicker without dying; my condition is not so desperate as 'tis thought, and at the worst, God has done other miracles. Which happens, by reason that we set too much value upon ourselves. It seems as if the universality of things were in some measure to suffer by our dissolution, and that it did commiserate our condition. For as much as our depraved sight represents things to itself after the same manner, and that we are of opinion they stand in as much need of us as we do of them; like people at sea, to whom mountains, fields, cities, heaven and earth are tossed at the same rate they are. (Of Judging of the Death of Another.)

To his high sense of what was appropriate and fitting the banalities of the deathbed were peculiarly offensive.

It is the dreadful looks, the grim apparatus with which we surround Death, that affright us. Quite a new aspect of life—the cries of mothers, of wives, of children, visits from dazed, heart-broken people; the presence of numbers of pale footmen, their eyes swollen with crying; a dark room, lighted tapers, our couch besieged by physicians and preachers—in short, every kind of horror and alarm around us. (To Study Philosophy is to Learn to Die.)

I have seen many miserable dying, surrounded with all their train: 'tis a crowd that chokes them. 'Tis against duty, and a testimony of

little kindness, and little care, to permit you to die in repose, one torments your eyes, another afflicts your ears, another tires your faltering tongue; you have neither sense nor member that is not violated by them; your heart is wounded with compassion to hear the mourning of those that are your real friends, and perhaps with spite, to hear the counterfeit condolences of those who only pretend and make a show of being so. Whoever has been delicate that way, when well, is much more so in his weakness. (Of Vanity.)

He has some pertinent remarks about old age as a natural death.

What an idle conceit it is, to expect to die of a decay of strength, which is the last of effects of the extremest age, and to propose to ourselves no shorter lease of life than that, considering it is a kind of death of all others the most rare, and very hardly seen. We call that only a natural death, as if it were contrary to nature, to see a man break his neck with a fall, be drowned in a shipwreck at sea; or snatched away with a pleurisy, or the plague, and, as if our ordinary condition of life did not expose us to these inconveniences. Let us no more flatter ourselves with these fine sounding words: we ought rather, at a venture, to call that natural, which is common and universal. To die of old age, is a death rare, extraordinary and singular, and therefore so much less natural, than the others: 'tis the last and extremest sort of dying; and the more remote, the less to be hoped for. (Of Age.)

*Vre plus humble & plus
affectionné à vous faire service
Marie de Gournay*

Signature of Marie de Gournay in a letter to J. Lipsius.

It must have been the remembrance of La Boëtie's last hours and the hope that his presence had comforted the dying man that prompted him to say:

In such a necessity a tender hand is required, and accommodated to his sentiments, to scratch him just in the place where he itches, or not to meddle with him at all. If we stand in need of a

midwife [*sage femme*] to bring us into the world, we have much more need of a wiser man to help us out of it. Such a one, and a friend to boot, a man ought to purchase at any rate for such an occasion. I am not yet arrived to such a pitch of bravery as to disdain all assistance in that

fronçaise de la chaisaigone

This autograph of Montaigne's wife is a facsimile of that affixed to her marriage contract.

fatal hour, nor pretend to be able so to fortify myself in my own strength, that nothing can assist or defend me; I have not brought myself to that; I endeavor to hide myself, and to escape from this passage, not by fear but by art. I do not intend in this act of dying to muster up and make a show of my constance. For whom should I do it? All the right and title I

have to reputation will then cease. I content myself with a death involved within itself, quiet, solitary, and all my own, suitable to my retired and private life. (Of Vanity.)

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JOHN FERRIAR

(1761-1815)

By JOHN RUHRÄH

BALTIMORE, MD.

FROM Dr. Slop to Dr. Ferriar is but a step. Searching out Sterne and John Burton, the original of Dr. Slop, one comes across John Ferriar, who, like so many of the British literary doctors, was the son of a clergyman, the Rev. Alexander Ferriar. John was born at Oxnam near Jedburgh, Roxburghshire, November 21, 1761, but his early life was spent near Alnwick. Edinburgh was the most practical place to study and receive a degree so he repaired thither. In 1781 he received his degree after writing a thesis entitled "De Variola." The following year he married Barbara Gair at Alnwick and began practice at Stockton-on-Tees, but three years later he removed to Manchester where he became acquainted with the founders of the Literary and Philosophical Society. From then on he divided his time between medicine and literature, worshipping at the two shrines with commendable devotion. The result was a considerable output of writing, much of which was of a high quality. Like Dr. Burton of York, he was also an antiquarian, but a mere tyro beside the indefatigable Burton.

His first paper, entitled "Of Popular Illusions and more Particularly of Modern Demonology," was read in 1786. This was followed by an "Essay on the Dramatic Works of Massinger." When Gifford, in 1805, issued his edition of Massinger he reprinted this essay. The next year he turned out five papers differing widely in subject. The first, "Observations of an Ancient Monument in Hulme Abbey, Northumberland"—was illustrated by himself. This was followed by a theological article, "An Argument against the Doctrine of Materialism," and another antiquarian paper, "Conjec-

tures on the Use of Ancient Terraced Works at Orton Scarr." In this year he began his studies of Sterne and published the "Comments on Sterne." In 1788, he dipped into poetry. The result was "The Puppet Show, a Didactic Poem." It is partly a translation of Addison's "*Machinae Gesticulantes*."



JOHN FERRIAR, M.D.

Another and more successful attempt in verse was "The Bibliomania, an Epistle to Richard Heber, Esq." This contains many wonderful lines in its fourteen pages and really deserves to be reprinted. It begins:

What wild desires, what restless torments seize
The hapless man, who feels the book-disease.
Taste, tho' misled, may yet some purpose gain,
But fashion guides a book compelling train.

The "book compelling" was suggested by Pope's Iliad—"Cloud compelling Jove."

How, flush'd with joy, the Bibliomaniac may shew
His Carrs *uncut* and Cottles, fair in row;
May point, with conscious pride to envying throngs
His Holcroft's dramas and his Dimond's songs.

* * * * *

With deep concern, the curious bid me tell
Why no Black-Letter dignifies my cell:
No Caxton, Pynson? in defence I plead
One simple fact: I only buy to read.

The same year he tried tragedy—"The Prince of Angola, a Tragedy Altered from the Play of Oroonoko (by T. Southern) and Adapted to the Circumstances of the Present Day." They always did try tragedy in those days and a doleful lot of sorrowful woe was poured out on the world which, of

AN

ESSAY

TOWARDS

A THEORY

OF

APPARITIONS.

BY

JOHN FERRIAR, M. D.

A thousand fancies
Begin to throng into my memory,
Of calling shapes, and beck'ning shadows dire,
And airy tongues, that syllable men's names
On sands, and shores, and silent wildernesses.
These thoughts may startle well, but not astound.

COMUS, l. 205

LONDON:

PRINTED FOR CADELL AND DAVIES;

BY

J. AND J. HADDOCK,
WARRINGTON.

1813.

His medical "Histories and Reflections" appeared in three volumes in 1792, 1795 and 1798, and a fourth was added when a second edition was reprinted in 1810-13. There is also an American reprint at Philadelphia, dated 1816. In 1799 he wrote "An Essay on the Medical Properties of Foxglove." Withington's contribution had been exploited by many for a great many different diseases, and naturally with success. All new medicaments succeed at first in almost all diseases. The blind try to lead the blind. Not that Ferriar was an unintelligent observer; he was rather keen. He suggested the external use of digitalis in certain "ulcerated herpetic conditions." His other conclusions are interesting.

I. That Digitalis is a direct remedy in active hemorrhage, by its proper action in retarding the velocity of the circulation.

II. That the diuretic action of Digitalis, though independent of its sedative power, may sometimes take place in conjunction with the latter, and may even cooperate with it, by its effects on the system as an evacuant.

III. That in pulmonary consumption arising from hæmoptysis, or tubercles, much relief may be obtained from the use of Digitalis, and that even a cure may now be hoped for, under circumstances which formerly precluded all expectation of recovery.

IV. That in anasarous affections of the cellular membrane of the lungs or in cases where effusion, or inflammatory exudation shall have taken place, Digitalis promises to prove a useful medicine.

V. That upon the principle of diminishing irritability, Digitalis has been very useful, in chronic coughs, in spasmodic asthma, in palpitations of the heart, not depending on simple debility.

VI. That the hydragogue and diuretic powers of Digitalis, although not invariably exerted in consequence of its exhibition, are sufficient to render a trial of it proper, in most cases of dropsy; but that it seems to operate most beneficially, when combined with other hydragogues or sudorifics.

course, passed it by unheeded. For ten years, Ferriar seems to have devoted his attention to medicine. He was physician to the Manchester Infirmary, Dispensary, Lunatic Hospital and Asylum, which led him to write the very delightful "Essay on Apparitions."

VII. That when *Digitalis* is to be exhibited repeatedly, during the day, and especially if it be thrown in at short intervals, in cases of urgency, the strictest caution is necessary, on the part of the physician and the attendants, to prevent the alarming and even fatal consequences, which may arise from administering this powerful medicine incautiously.

VIII. That in simple inflammatory diseases the use of *Digitalis* may perhaps supersede the necessity of repeated bleedings and purging, and save the practitioner from much anxiety and embarrassment, which attend the present practice, in such complaints.

His best medical work, one that reads like a novel, or rather like a collection of modern short stories which any mystery magazine could publish with but few changes, is entitled, "An Essay towards a Theory of Apparitions." On the title page the following apt quotation appears:

A thousand fantasies
Begin to throng into my memory,
Of calling shapes, and beck'ning shadows due,
And airy tongues; that syllable men's names
On sands, and shores; and desert wildernesses,
These thoughts may startle well, but not astound.
Comus 1, 205.

His views on the subject are most sane. He summarizes them in a few words.

The Terror of nocturnal illusions would thus be dissipated, to the infinite relief of many wretched creatures; and the appearance of a ghost would be regarded in its true light, as a symptom of body distemper, and of little more consequence than the headache and shivering attending a common catarrh.

The opening sentences of this essay give one some idea of his style.

I shall begin this discussion, by admitting, as an undeniable fact, that the forms of dead, or absent persons have been seen, and their voices have been heard, by witnesses whose testimony is entitled to belief.

It would be an endless task to ransack the pages of antiquity for instances of this kind. The apparition of the Genius to Brutus, and of

the Fury to Dion, cannot be doubted. We may be allowed, however, to enquire, whether the improved state of physiology affords any glimpse of light on this subject, and whether such extraordinary and terrific impressions cannot be explained from the known laws of the animal œconomy, independent of supernatural causes, in the examples furnished by profane history.

It is well known, that in certain diseases of the brain, such as delirium and insanity, spectral delusions take place, even during the space of many days. But it has not been generally observed, that a partial affection of the brain may exist, which renders the patient liable to such imaginary impressions, either of sight or sound, without disordering his judgment or memory. From this peculiar condition of the sensorium, I conceive that the best supported stories of apparitions may be completely accounted for.

Other works are a "Menippean Essay on English Historians on the Origin of the Modern Art of Fortification," an article entitled "On Genius," and "Dialogues in the Shades."

Few physicians today who do not lean to literature have ever heard of Ferriar. The *literati* know him for a work published in 1798 at Manchester and a second edition in two volumes at Warrington in 1812. This is a remarkable piece of literary criticism, in fact, one of the most remarkable studies of the kind, entitled, "Illustrations from Sterne with other Essays and Verses." It is not a very long article, is easy to read, and may be recommended to every lover of Sterne and to every hater of Sterne—there are some such stupid people in the world—so it must give endless satisfaction. A few words from his preface will give an idea of the style.

Among some advantages, there are considerable inconveniences experienced by that small, but not unworthy, class of authors who write their own books.

If they enjoy some consciousness of meriting success, they feel more acutely when their

works are neglected or misunderstood. By an exclusive attention to their peculiar objects, they sometimes lose sight of the current public taste, and are astonished to find the fruits of their labour rejected with disdain, or viewed with indifference.

They enter, also, the awful courts of criticism under great disadvantages. The author who borrows the pen of a popular writer, finds him-

ILLUSTRATIONS

of

STERNE:

with

OTHER ESSAYS AND VERSES.

BY JOHN FERRIAR, M.D.

Peace be with the soul of that charitable and courteous Author, who, for the common benefit of his fellow-authors, introduced the ingenious way of Miscellaneous Writing!

SHATTESBURY.

PRINTED FOR
CADELL AND DAVIES, LONDON.

by
George Nicholson, Manchester.

M.DCC.XCVIII.

self admitted to the bench, is graciously received and powerfully protected. Meantime, the friendless and solitary composer of his own productions stands trembling at the gate, or listens to his sentence of condemnation from a judge who has scarcely deigned to examine his cause.

. . . What remains, then, for the author of his own book? The pleasure of composition; the consciousness of some talent; and the liberty of reading and praising only the best writers. . . . But nowhere is the original author more puzzled, than in writing his own preface. This is usually supplied like the prologue to a play, by some obliging friend. Nor is it discreditable to acknowledge this difficulty, since even Cervantes owns that he had more trouble in composing his preface, than his immortal

work itself.¹ Yet a preface is still required, (like the obeisance of the last century, on entering a room,) however familiar may be the subject, or however gay the work.

As every one now knows, Sterne plagiarized extensively, as was pointed out by Ferriar. But, be it borne in mind, so have nearly all the great literary lights. They borrow and improve. Wherever Sterne appropriated anything he made it peculiarly his own, made it sparkle and set it in a worthy setting. Sterne's sermons, which Ferriar points out were borrowed largely from Bishop Hall, are certainly as good reading, if not better, than the originals. As sermons go, all could be traced back to some other writer—the variations possible are not many. Considering the millions on millions of sermons that have been preached, small wonder that there are resemblances. Sterne's sermons are thoroughly readable; certainly any means would justify such an end. In "Tristram Shandy" there is much that has been taken from Burton's "Anatomy of Melancholy," that curious hodgepodge of quotations and fancies probably compiled to drive away the foul fiend from Democritus Junior himself. Dr. Johnson once said it was the only work that could get him out of bed an hour earlier. Many of the curious quotations and ideas in "Tristram Shandy" are taken directly from Burton's collection. With such a mine of wealth of the kind at hand, why go farther. But they take on a new charm in Sterne. Pick up Burton and then pick up "Tristram Shandy" and say honestly which you prefer.

Ferriar, no matter how much he delighted to pick out the similarities of Sterne and Burton, is, nevertheless, more than once constrained to give the devil his due. For example, the fragment respecting the Abderi-

¹Prologo de Quixote—Porqué te sé decir, que aunque me costó algun trabajo componerla, ninguno tuve por mayor que vas leyendo. Muchas veces tomé la pluma para escribilla, y muchas la dejé por no saber lo que escribiría.

tans, in the "Sentimental Journey," is taken from Burton's "Chapter of Artificial Allurements," of which, he goes on to say, Burton neglected to give the source—the introduction to Lucian's "Essay on the Method of Writing History." Ferriar says: "Burton has spoiled this passage by an unfaithful translation. Sterne has worked it up to a beautiful picture, but very different from the original in Lucian, with which I am persuaded, he was unacquainted."

Ferriar has given an account of the "ludicrous writers, from whom Sterne probably took general ideas or particular passages."

Some of my readers may probably find themselves introduced in this chapter to some very strange acquaintances, and may experience a sensation like that which accompanies the first entrance into a gallery of ancient portraits; where the buff and old iron, the black skull caps, wide ruffs and farthingales, however richly bedecked, conceal, for a while, the expression and the charms of the best features.

Ferriar evidently had a splendid library of these old writers and, what is more, was familiar with them. A curiously unfamiliar lot of names—Beroalde, Sieur de Verville, a canon of the Cathedral of Tours, who "considered his reputation as a wit more than as a clergyman," Theodore Agrippa D'Aubigne, Guillaume Bouchet, Taborin, Bruscambrille, Caspar Ens, Count D'Aréte and many others. It is interesting to know where some of the Sterne stories are derived. Would it not be more so to know where the above worthies got them?

Sterne was familiar with these worthies of yesteryear through browsing in the library of his friend, Hall-Stevenson, the Eugenius in "Tristram Shandy" at Crazy Castle, where "goings on" equally as fantastic were delighted in by a select coterie.

Ferriar precedes his essay with a sonnet to Sterne, which should forever set at rest the question of what that physician thought of the Prebendary of York.

Sterne, for whose sake I plod thro' miry ways
Of antic wit, and quibbling mazes drear,
Let not thy shade malignant censure bear,
Tho' aught of borrowed mirth my search betrays.
Long slept that mirth in dust of ancient days,
(Erstwhile to Guise or wanton Valois dear)
Till waked by thee in Skelton's joyous pile,
She flung on Tristram her capricious rays.
But quick the tear, that checks the wandering smile
In sudden pause, or unexpected story,
Own thy true mast'ry; and Le Fevre's woes,
Maria's wand'rings, and the Prisoner's throes
Fix thee conspicuous on the shrine of glory.

Ferriar was a man of profound learning; his views of the shallow, which someone said recalls some lines of Gray's,¹ are aptly expressed in some lines prefixing an essay "On Certain Varieties of Men."

. . . . who reads
Incessantly, and to his reading brings not
A spirit and judgment equal or superior,
(And what he brings, what need he elsewhere seek?)
Uncertain and unsettled still remains,
Deep vers'd in books and shallow in himself.

Ferriar died at Manchester on February 4, 1815, and is buried in St. Mary's Church. His portrait has been engraved by Bartolozzi after a drawing by T. Stothard, considered by many the best illustrator of Sterne.

Ferriar was a keen student of literature, a linguist of ability, of wide reading, of much culture, no mean poet, a clever essayist, a wise, skillful physician, perhaps best of all, a most distinguished critic. Surely the memory of such a paragon needs to be kept from the dust of oblivion.

¹ Rich windows, that exclude the light
And passages which lead to nothing.

THE INTERPRETATION OF AVICENNA

By O. C. GRUNER, M.D.

LEEDS, ENGLAND

IT IS some nine hundred years since the Canon of Medicine of Avicenna first saw the light. For four hundred years it has been so little esteemed that no further editions have been issued. At the present day we have translations of Hippocrates into English, of Galen into French, but we have none of Avicenna excepting the Latin editions up to 1595, of which very few copies are to be found. Other works by Avicenna have been recently translated direct from the Arabic into French, and a masterly monograph on the man and his time was issued at Paris in 1900.

More important than translations is the matter of interpretation. Taken on their face value, many of the statements of ancient medicine appear useless, and the revival of Avicenna's writings would not reveal very much difference from that with which historians have become familiarised through Galen. It is not till Avicenna's works other than on medicine are gone into, that a new light begins to shine upon the ancient system. There is a small treatise, called "*De viribus cordis*," included in certain editions of the Canon (such as the edition preserved in the McGill University Library), which provides the key by which to interpret the greater book. And as Avicenna may be regarded as the fountain-head of Arabian medicine, it provides the key for the proper understanding of the whole of that period of history.

Some have been disposed to regard the *Libellus* as an interpolation. Even were it so, it was a wise act to introduce it into the volume. To print a cipher, and also to favour the reader with the key, in the same volume, is more than fortunate. Were it really the case that the author of the *Libellus* lived

some four hundred years later than the author of the Canon, he was doing for us what Fārābī, the Sufi interpreter of Aristotle, did for Avicenna at a time when the latter was so anxious to discover the true meaning of the "*Metaphysics*." In his youth, while searching through the contents of second-hand bookstalls, Avicenna found the copy of Fārābī's book, and welcomed it with delight, as proving ultimately of greater value to him than all the other books he had read, put together.

The "*De viribus cordis*" occupies some twenty pages of foolscap size, closely printed in double column. Space would not permit of a reproduction of the translation of the whole, but the few brief extracts here given will serve to show the kind of matter of which it is composed.

The first chapter of this *Libellus* deals with "*The Source of the Breath*," saying:

God caused the breath to be a vehicle for conveying the powers of the mind into the several members of the physical part of the human being. Accordingly, He brought it about that the breath should be the rallying-point of the forces of the mind, and at the same time become an emanation into the various tissues and organs of the body. Now He produced the breath from the finer parts of the body-fluids, and separated out the body itself from their coarser components (their earthiness) . . . In essence, the breath is really a divine emanation. It can neither be added to nor taken from. Once it has been fully built up, its nature may be said to depend upon the particular proportions of the various constituents and the disposition of these components in relation to one another; thus it depends also upon the member or organ in which it occurs. It is correct to say that the psychic, the vital and the natural breaths derive their substance from the fine parts of the body-fluids. Nevertheless,

their substance has a particular character, which depends on the relative proportions of the component fluids and on the particular form which they assume after being mingled. Although the body consists of several members, there is only one member underlying them. The opinions as to what this member exactly is are very diverse. Yet it is true that the first must come to light before the other members can arise out of it.

Exactly in the same way, though there are several breaths in us, there is only one single breath underlying them all—namely, that which arises in the heart. This breath passes from the heart to the other centres, lingering in them until they impart to it their particular character. From this moment the breath possesses the power of linking the Person to the powers which lie at his disposal. Lingering in the brain, the brain imparts its character, from which moment the breath acquires the power of sensation and motion. In the liver, this organ imparts its character to the breath and enables it for the first time to enter the cycle of metabolism and growth. In the testes, these organs impart their character to the breath, and, the two being in joint relation, the breath enters the generative cycle.

In the next chapter, it is written, "the breath is a luminous substance. It is a ray of light."

From these passages it is clear that this treatise on disorders of the heart approaches the matter from an entirely different standpoint to that to which we are accustomed. In no part of the treatise is there any mention of valvular disease, of pericarditis, hypertrophy or dilatation, and so forth; but there is a careful analysis of the relations between the emotions and the heart's action, a fact of interest to those who like to find analogies between modern researches and the knowledge of the ancients.

The whole doctrine centers on the doctrine of "the breath." The Latin equivalent is "*spiritus*," the Greek equivalent is "*pneuma*," and the mediaeval English is "*spirit*." With the steady and insidious

change of meaning assigned to this word, it conveys an entirely different idea today. This accounts for the fact that mediaeval medical literature seems impossible and even absurd to us today. The word "*spirit*" usually conveys the idea of personality with it; but the "*breath*" is impersonal. We shall find it used impersonally in books of Eastern Wisdom, now available in English translations.

The words "heart," "liver," "brain," at once suggest that the writer means certain viscera. But the further one goes into the book under consideration, the clearer it is that to Avicenna they are not limited in this way. When he speaks of the heart, he means a certain physiological *tout ensemble*—the whole arterial system, whose focus is the literal heart. For him, the brain is something more than the mass of nervous substance in the skull. The word "liver" merely forms a convenient focus into which to gather the whole of the nutritional-complex of the body. Even had Avicenna known all we know about the microscopic physiology and pathology of the human body, it would not have altered his conception of the function as enacted in a mind-body first, and in the physical body secondarily. And the breath belongs to still another plane, to which both mind-body and physical-body are subservient.

A very simple diagram enables the reader of Avicenna to perceive clearly where he stands. Three horizontal lines, A, B, and C may be drawn, placing A farther from B than B is from C. C represents everything in the phenomenal world, B represents everything in the noumenal world, and A represents a world beyond each. C = materies; B = substantia; A = spiritus. Everything on C belongs to the concrete human body of the anatomist. And the breath (of plane A) is conceived of as continually circulating, operating at one time on the components of plane B, at

another on those of plane C. As we read Avicenna, we must follow his thought as he passes from plane to plane, and back again; and we must follow him with the same dexterity (which almost seems to be inconsequence) with which he himself passes from one to another during his expositions of abstruse processes.

It is easier to understand the process of "breath" passing from B to C, when this indefinable agent is understood as a form of vibration which changes in degree of coarseness. As the vibration becomes coarser, so the more nearly is it related to substances on plane C; as it becomes finer the more does it approach those on plane B. There is a continuous cycle, passing from fine vibrations to coarse and back again. To those who would be inclined to doubt whether such conclusions can be drawn from the material available, an enquiry into Eastern philosophy may furnish the critical evidence required. For, in many of the scholarly translations produced during recent years, we find considerations which indicate that the ancient teachings survive and are still extant among certain schools in the East. Carra de Vaux, in his study of Avicenna (Paris, 1900) shows the importance of entering into the Eastern atmosphere before the significance of Avicenna's philosophy can be correctly dealt with, and he also provides evidence which shows that Avicenna was a "Sufi," from which it becomes clear to the earnest enquirer that many of his terms are technical terms only to be rightly interpreted in terms of Sufi philosophy. Translations of many Sufi classics are now available, and from them we see why Avicenna should have been a recognised master not only of medicine, but of commerce, law, philosophy and mathematics.

Next to the doctrine of "the breath," that of the "elements" is a conspicuous feature not only of Arabian medicine but of all ancient medicine. The historian

regards this doctrine as fanciful, childish, and a cloak of ignorance. No doubt it has often been so, in practice. But it is possible to arrive at the rationale underlying it. The elements—earth, water, fire, air, ether—are forms of a vibration which is constantly changing in amplitude in an orderly cyclical fashion, just as the breath changes. The elements interact with the breath, the visible organs change according to the change in the elements, and, through the latter, become the *points d'appui* of the "breath." Both sides are necessary. To give an instance: a change in the rhythm of the breath may be the beginning of a loss of immunity to bacterial agents. Further, though the cycle of the breath is always in action, it is not always one and the same wave. Sometimes it is quick, sometimes slow; sometimes hourly, sometimes twice a day, sometimes once a day, once a week, once a month, seasonal. Every family, every race, has its type of breath. Hence by this philosophy we have the key to many anomalies of human life, as well as to pandemic diseases.

As long as it was supposed that the ancient elements were on a par with the modern chemical elements, there could only be confusion. The elements of ancient medicine were on plane B. The chemical elements are on plane C. "Water" is not H_2O . A substance may be "moist" although it contains only an infinitesimal amount of H_2O in it. If the word "water" were represented by a circle drawn on a piece of paper, the modern reader, from his education, believes he should write H_2O , or H, OH inside the circle to picture the meaning of the word; but in Sufic terms, H, OH should be written in a little circle inscribed excentrically within the first circle. "Air" ordinarily means "atmosphere;" but CO_2 is also "air;" even if CO_2 be solid, it is still "air." "Fire" is not merely flame, or heat. The chemical group CH_2 is also "fire," and so on. This might perhaps appear to be

very confusing, but closer scrutiny will show the value of the conception.

Glucose, for instance, which is so important a constituent of the human being, contains two molecules of H_2O , two of CO_2 , and four of CH_2 . In ancient nomenclature it could be described as made of two parts of "water," two of "air," and four of "fire" bound together by a cohesive force; this force may be neutralised by another of opposite magnetic sign. In this way the "air" may be liberated, and the other two remain coherent, as occurs when alcohol is formed from it, the once-named "fire-water." Although the internal molecular arrangements are more intricate, so that this comparison contains important inaccuracies, it is also true that the ancient "elements" are not ponderable. One cannot reduce them to chemical equations. But the illustration is applicable in a certain sense.

The subject of "constitution" also forms a conspicuous feature of the ancient medicine. This word is also liable to misinterpretation through believing all physiological questions belong to plane C of the diagram given. There is a constitution on plane C, and there is a constitution on plane B. The latter is the outcome of the arrangement of the "elements." There is also a constitution on plane A, since the breath has a constitution. As Avicenna says: "Although it is true that the same person can be sad and glad, yet one person has a cheerful disposition, another is a pessimist. It is altogether a different thing to pass one's life in a body whose breath has a glad tendency, to passing one's life in a body with a depressed or morbid disposition." A "moody" person is one whose breath changes more rapidly, and also causes a greater change in the constituents belonging to plane B. Saintliness of disposition is therefore the attribute of a certain formula of breath. For instance, representing the component elements by the initial letters, and representing the relative proportions in terms of grades 1-5,

1 being minimal, five maximal, one person's constitution may be $E^1W^4F^1A^3Ae^5$, and another's $E^2W^2F^3A^2Ae^2$. If these formulae describe their constitution on plane B, the former would be saintly, the latter would be pugnacious. The "fire"—element may be gentle in the former, explosive in the latter. Therefore this element reaches its climax in a moment in the latter, and may take weeks to do so in the former; by that time all need for action may have dissipated, and the equable temperament of the saintly person prove a source of admiration to one who is irascible.

The application of the doctrine of temperament, of constitution, to the science of pharmacology appears in the ninth chapter of the "De viribus," where the properties of medicines are discussed. The plants are regarded as sharing in the general law of temperament, and the relations between their active principles and the successive planes of the human organism are viewed on the same lines. The interaction between drugs and emotions can hardly be gainsaid, and is certainly entirely out of the range of physiological recording-apparatus, except perhaps the electrocardiogram. Avicenna sees everything on plane B, and thus comes to be reasonable instead of, as hitherto, an expositor of things obviously at variance with "facts" known to us. The "facts" are the tangible things belonging to plane C.

It would lead too far to take up many of the conceptions which we find in the pages of the Canon, and show how they can be translated into modern language. Nothing short of a voluminous exposition would suffice to demonstrate the fundamental accuracy of this ancient Master of Medicine. Although there is one master-key, that of "the breath," which is necessary to unlock the treasures of the past, there are several other keys which are necessary to open the doors beyond the central hall of the treasure-house, as it were. All these keys can be

found once it is believed possible that the great minds of the past were perfectly sound, but they are elusive to those who believe that every mind of the past was unintelligent, and not as evolved as the minds of today. While modern science brings to light more and more details about entities in their concrete phase, Avicenna was quite familiar with them in their abstract phase. Even granting that the number of those who really understood his Canon may have been small, so that, in a sense, Arabian Medicine was not continuously as enlightened as its founder, it becomes clear that it was part of a great treasury of knowledge which opens out more and more to the enquirer who is willing to adopt the Sufi mode of viewing the world of Nature.

After this, we can look down the vista of medical history, and perceive that for certain periods of time, minds were directed first at one aspect of the human being, then at another. As one generation passed away the next lost touch with the dominant conception held by its parents. The doctrine of the "pneuma" held the minds of those who sought to explain all processes in terms of the "breath," and neglected the other aspects of the complete entity, man. The period of the "humoral theory" was one where attention was concentrated on the humours, trying to find out more and more about them, trying to make them more and more concrete. In doing this they abandoned the truth of the Pneuma and in fact believed it to be a false doctrine. Then the period of "cellular pathology," of today, concentrates all attention on the workings of tissue-units; some admitting the part played by the sera, and therefore allowing the "humours" to a certain extent, others placing this aspect as much in the background as possible; all ignore the "breath." The vitalist of an earlier age falls into discredit, in consequence.

However, all periods of the history of medicine hang together. Rather may one see them all as successive chapters of one single book, in which no one chapter is better or wiser than another, than regard them as discrete periods, or as struggles of a groping humanity towards light. The spirit of the human race has always known the truth, but at each epoch it has developed first one aspect, then another. When all parts of the one truth have been duly surveyed, then we, who stand at that point of vantage, can piece it all together, and approach the masters of the past in order to gather together all the seemingly isolated fragments into one true and complete picture of the nature of health and disease.

In doing so, the searcher after truth perceives the wisdom of the words of the Sufi Persian poet, when he speaks of the "hair dividing the false from the true." It is not that one thing is false in itself, and another true in itself. As soon as one stands between the two, one is enabled to observe that there are things on one plane, or on another, and that it is only a matter of viewpoint, or even of description, that enables one to regard one as definitely false, and the other as equally definitely true. People who are confined by habit of thought to one plane will believe the others false, and conversely. There is a proper place for each, and the best place is to be between the two. The study of Avicenna as a great Sufi work brings a glimpse of this position.

Hence, however false the great system of ancient Eastern Medicine may seem to us, the science of the West can receive nothing but gain from ripening an acquaintance with her, and even if the two finally celebrated their nuptials, no doubt it would only bring to light that one harmonious whole, the complete story of the nature of the human body, which all desire to realise.

EMERODS, MICE AND THE PLAGUE OF I SAMUEL, CHAPTER VI

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IT seems admitted that Biblical scholars are by no means unanimous as to all that is involved in I Samuel, Chapter VI, particularly verse five, which reads: "Wherefore ye shall make images of your emerods and images of your mice that mar the land."

This recommendation was made by the priests and diviners of the Philistines on account of a plague that attacked their people and appeared to have some connection with the presence of the Ark of the Lord in their midst.

Maspero and Sayce¹ thus describe the situation: "It so happened that the Ark of the Lord, the ancient safeguard of Ephraim, had been lying since the battle of Eben-Ezer not far away without a fixed abode or regular worshippers. The reason why it had not brought victory on that occasion was that God's anger had been stirred at the misdeeds committed in His name by the sons of Eli and desired to punish His people; true, it had been preserved from profanation, and the miracles which took place in its neighbourhood proved that it was still the seat of a supernatural power.

"At first the Philistines, according to their custom, had shut it up in the temple of Dagon at Ashdod. On the morrow, when the priests entered the sanctuary, they found the statue of their god prostrate in front of it, his fish-like body overthrown, and his head and hands scattered on the floor; at the same time a plague of malignant tumours broke out amongst the people and thousands of mice overran their houses. The inhabitants of Ashdod made

¹History of Egypt, The Grolier Society, London, vi, 345.

haste to transfer the Ark to Gath, from Gath it passed to Ekron, and it then went the round of the five cities, its arrival being in each case accompanied by the same disasters. The soothsayers being consulted at the end of seven months, ordered that solemn sacrifices should be offered up and the Ark restored to its rightful worshippers accompanied by expiatory offerings of five gold mice and five golden tumours, one for each of the repentant cities."

In a footnote to this passage we read: "In the Oustinoff collection at Jaffa there is a roughly shaped image of a mouse cut out of a piece of white metal and perhaps obtained from the ruins of Gaza; it would seem to be an *ex voto* of the same kind as that referred to in the Hebrew text, but it is of doubtful authenticity." The representation, if of a mouse, is anatomically incorrect in several respects, one of them being the absence of a tail.

Not until the recent knowledge of the ætiology of plague had been acquired could we have understood the significance of the making of these golden mice.

It is now known that bubonic plague, so common in India, is due to the presence in the blood of a bacillus known to pathologists as the *bacillus pestis*. This micro-organism was discovered in 1894 by the Japanese workers, Yersin and Kitasato, to be the cause of plague. But it is also known that rodents—mice, rats, marmots—are attacked by this same *bacillus pestis* and can, therefore, suffer from their own form of plague. Further, it has been established that the usual method of infection is, in the case of man, to be bitten by a flea which has been feeding on the plague-stricken rat or other rodent. That is to

say, a "carrier" is necessary to convey from the diseased animal some of its blood containing the bacilli of plague, which, being introduced by the flea into the human being, can induce the development of plague in that individual. One of the characteristics of this form of plague is the development of buboes, tumours or swellings of the lymphatic glands in the groin or armpits, most commonly in the groin, the word *bubo* being derived from the Greek for the groin.

It is very remarkable that the priests should have recommended placing in the Ark not only five golden emerods but also five golden mice. The word *emerod* is a variant of *hæmorrhoid* and seems to be used in this and certain other passages where plagues are mentioned as the synonym of *tumour*. Thus in Deuteronomy¹ we read: "The Lord will smite thee with the botch of Egypt and with the emerods and with the scab and with the itch whereof thou canst not be healed."

The interest attached to the emerods in the Ark is, then, that we may take it as exceedingly probable that the plague of I Samuel, Chapter VI, 5, was bubonic plague. But a higher interest still belongs to the five golden mice for they seem to point to some suspected connection between the diseased lower animals and the plague-infected people. The mice that overran the land were in the light of modern knowledge almost certainly a link in the chain of infection; it was not merely that they overran the land, it was that they were a causal or antecedent factor in the production of the human epidemic. Whether the Philistine soothsayers recognized this causal link we cannot now say definitely;

¹Deuteronomy xxviii, 27.

if they did suspect the connection between the mice and the bubonic plague, they anticipated scientific truth by more than 2000 years.

The Oxford Dictionary quotes a writer in 1855 who remarks: "The mice and emerods of gold were essentially *charms*." It is perfectly possible that the images in the Ark were intended as charms of two different kinds, the emerods against the human plague, the mice against the overrunning of the land by the vermin. It is certainly exceedingly striking to find the tumours and the rodents associated at so remote a date when we know that only quite recently has it been established that rodents are a necessary factor in the production of human bubonic plague.

"No rats, no plague," is an old saying amongst the people of India.

It was, of course, not until the microscope had reached its present high state of perfection that the various links in the chain of evidence connecting the microbe at one end and the man at the other could be made irrefragable, but it is certainly interesting to know that the "Black Death," which was for two millennia one of the most terrible and elusive of all the mysterious influences that warred against mankind, has been captured, identified and made to reveal the dreadful secret of its origin.

It is only now that we are not "afraid for the pestilence that walketh in darkness nor for the destruction that wasteth at noon day." The awful spectre of plague, the incubus of antiquity and of the Middle Ages, has at last been met face to face and has been routed by the "dry light" of science, that light that streams up through the lenses of the microscope, the veritable *in boc vinces* of biology.

THREE ELECTROTHERAPISTS OF THE EIGHTEENTH CENTURY: JOHN WESLEY, JEAN PAUL MARAT AND JAMES GRAHAM*

By W. J. TURRELL

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IT would, I think, be difficult to find three men differing more widely in character and temperament than the three whose names I have selected as representative of electrotherapy in the eighteenth century—John Wesley, the eminent divine and credulous enthusiast; Jean Paul Marat, the revolutionist and scientist; and James Graham, the fanatical quack.

It is impossible to read a life of John Wesley (1703–1791) without being impressed with his strong leaning both to the study and to the practice of medicine. His thoughts appear to have been first drawn in this direction by a perusal, at the age of twenty-one, of Dr. Cheyne's work, "A Book of Health, and Long Life." Wesley may have been induced to read this book in order to find a cure for the severe attacks of epistaxis from which he suffered at this period of his life. So violent had the hemorrhage been on one occasion that, writing whilst in residence at Oxford, he says that he was only able to arrest the bleeding from his nose by the drastic procedure of stripping himself and plunging into the Thames.

Wesley's prejudice against the medical profession appears to have arisen in the first place on account of the unfavourable reception which this work of his favourite medical author received at their hands. On November 1st, 1724, he thus writes to his mother, "I suppose you have seen the famous Dr. Cheyne's "Book of Health and Long Life" which is, as he says he expected, very much cried down by the physicians. He refers almost everything to temperance

and exercise, and supports most things with physical reasons. He entirely condemns eating anything salt or high-seasoned, as also pork, fish, and stall-fed cattle, and recommends for drink two pints of water and one of wine in twenty-four hours, with eight ounces of animal and twelve of vegetable food in the same time. The book is chiefly directed to studious and sedentary persons."

According to Tyerman's "Life and Times of Wesley," this Dr. Cheyne was "educated at Edinburgh, where his habits were temperate and sedentary; but, proceeding to London, he associated with a number of young gentry, to retain whose friendship it was necessary to indulge to the utmost in table luxuries. The result was, Cheyne became nervous, scorbutic, short-breathed, lethargic, and listless; and was so enormously fat as to be nearly thirty-three stones in weight. His life became an intolerable burden, and, to cure himself, he adopted a milk and vegetable diet, by means of which he recovered his strength, activity, and cheerfulness." This book evidently made a great impression on Wesley, for in Vol. III of his "Works," forty-six years later, he states: "From ten to thirteen or fourteen, I had little but bread to eat, and no great plenty of even that. I believe that this was so far from hurting me, that it laid the foundation of lasting health. When I grew up, in consequence of reading Dr. Cheyne, I chose to eat sparingly and to drink water." In Vol. I of his "Works" he praises another of Cheyne's books "Natural Method of Curing Diseases." In reference to this book he regretfully comments, "What epicure will ever regard it? for the man talks against good eating and drinking."

*A Paper read before the Royal Society of Medicine Section of the History of Medicine, January 19, 1921.

It was not, however, till the year 1746, when he was forty-three years of age, that Wesley opened a dispensary at the Foundery, Moorfields, London, and systematically started the practice of medicine. He was led to take this step owing to the necessities of the poor whom he encountered in his preaching. He had already started a fund to provide them with clothes, and in his "Works" he tells how he formed the resolution to start his dispensary: "At length I thought of a kind of desperate expedient: 'I will prepare and give them physic myself.' For six or seven and twenty years, I had made anatomy and physic the diversion of my leisure hours; though I never properly studied them, unless for a few months when I was going to America, where I imagined I might be of some service to those who had no regular physician among them. I applied to it again. I took into my assistance an apothecary and an experienced surgeon; resolving at the same time, not to go out of my depth, but to leave all difficult and complicated cases to such physicians as the patients should choose. I gave notice of this to the society; and in five months medicines were occasionally given to above five hundred persons."

In opening this dispensary Wesley naturally met with much opposition from the medical profession, and he retaliated on the attacks made against him in more vehement language: "For more than twenty years," he writes in a letter to Archbishop Secker, "I have had numberless proofs that regular physicians do exceedingly little good."

As is so often the case, this opposition appears to have been of considerable assistance to him, for his dispensary was so successful that within two months he opened a second one at Bristol. The progress of these dispensaries led him to medical authorship, for, in the following year, he published his interesting book "Primitive Physic: or an easy and natural Method of curing most Diseases."

In this book he made full use of his opportunities of attacking the qualified physicians of his time, and of course the book met with much adverse criticism from the medical profession. Dr. W. Hawes, the founder of the Humane Society, wrote a book with the special object of attacking "Primitive Physic." The following somewhat lengthy title of Dr. Hawes' book shows upon what grounds the attack was made: "An examination of the Rev. Mr. John Wesley's Primitive Physic; showing that a great number of the prescriptions therein contained are founded on ignorance of the medical art, and of the power and operations of medicine; and, that it is a publication calculated to do essential injury to the health of those persons who may place confidence in it. By W. Hawes, M. D." Wesley extracted some of the prescriptions from "Primitive Physic" and subsequently published them at the price of two pence under the title of "Receipts for the Use of the Poor." The success of "Primitive Physic" was so great that it reached twenty-three editions during Wesley's lifetime.

In 1758 Wesley published another medical book, entitled "Advices with respect to Health. Extracted from a late Author." A book of 218 pages. I have not seen a copy of this work, and I am indebted to Tyerman's "Life and Times of Wesley" for my information in regard to it. The "late author" was Dr. Tissot. Wesley, though praising Tissot's book on the whole, condemns "his violent fondness for bleeding, his love of glysters, his uncleanly ointment for the itch, and his vehement recommendation of the Peruvian bark, as the only infallible remedy either for mortifications or intermittent fevers." Wesley states that he took some pounds of the Peruvian bark when he was young, for a common tertian ague, but with no effect, a cure being brought about unawares by drinking largely of lemonade. Among several queer remedies

added by Wesley is one of applying warm treacle to the soles of the feet as a cure for erysipelas. This book is especially interesting as it contains the first reference to electrical treatment to be found in any of Wesley's works. He makes the claim that "electrifying cures all sorts of sprains." It was not till 1780—nearly twenty years afterwards—that he published anonymously his very remarkable book: "The Desideratum; or, Electricity made plain and Useful. By a lover of Mankind and Common Sense."

There is little doubt that Wesley derived his first information in regard to electrical treatment from the works of Richard Lovett, a lay clerk at Worcester Cathedral. Lovett's first book on this subject, entitled: "The Subtile Medium: or, that Wonderful Power of Nature, . . . showing its various uses in the animal economy, particularly when applied to maladies and disorders of the human body, . . ." was published at Worcester, in 1756. Lovett treated a large number of diseases by electricity, including St. Anthony's Fire, bronchocele, contractions, epilepsy, feet violently disordered, gout, headache, mortification, palsy, rheumatism, sciatica, sore throat, and fistula lachrymalis. His treatment appears to have been very thorough; in reference to hysteria and similar cases, he writes:

In these complaints it is not to be done by halves; not for a few minutes only (which is sufficient in some others) particularly if it has taken deep root; but the person ought to stand or sit on the electrical stool for an hour in the morning and another in the evening each day; or, if two hours a day cannot be complied with, let it be for two half hours. This may be practiced with sometimes simply drawing off sparks, afterwards with some slight shocks, and then if the disorder requires it, to be increased with more. Such proceeding I seldom found to fail of the desired effect.

Wesley in "The Desideratum" closely follows the practice of Lovett, to whom he

frequently refers. The most remarkable feature of his own book is the fervour with which he appeals for a trial of the curative effects of electricity. We have seen that he had a very poor opinion of the medical men of his day; in his book "Primitive Physic" he gives the following interesting sketch of how they came to acquire a monopoly of medical treatment:

Physicians now began to be had in admiration as persons who were something more than human. And profit attended their employ as well as honour, so that they had now two weighty reasons for keeping the bulk of mankind at a distance that they might not pry into the mysteries of the profession. To this end they increased those difficulties by design, which began in a manner by accident. They filled their writings with abundance of technical terms, utterly unintelligible to plain men. They affected to deliver their rules and to reason upon them in an abstruse and philosophical manner. They represented the critical knowledge of anatomy, natural philosophy (and what not? Some of them insisting on that of astronomy and astrology too) as necessary previous to the understanding of the art of healing. Those who understood only how to restore the sick to health they branded with the name of Empiricks.

In the preface of "The Desideratum," Wesley has another tilt at the doctors: "Mr. Lovett is of opinion that the electrical method of treating disorders cannot be expected to arrive at any degree of perfection till administer'd and applied by 'the Gentlemen of the Faculty.' Nay, then, Quanta de spedecidi! All my hopes are at an end. For when will it be administered and applied by them? Truly, ad Graecas Calendas. Not till the Gentlemen of the Faculty have more regard to the interest of their neighbors than their own. At least not till there are no apothecaries in the land, or till physicians are independent of them."

Wesley concludes his book with the following impassioned but rational appeal to the medical profession:

I would beg one thing (if it be not too great a favour) from the Gentlemen of the Faculty, and indeed from all who desire health and freedom from pain, either for themselves or their neighbours. It is, that none of them would condemn they know not what; that they would hear the cause before they pronounce sentence; that they would not peremptorily pronounce against electricity, while they know little or nothing about it. Rather let every candid man take a little pains to understand the question before he determines it. Let him for two or three weeks (at least) try it himself in the above named disorders. And then his own senses will show him whether it is a mere plaything or the noblest medicine yet known in the world.

The instruments available for electrical treatment at this period were the frictional machine for the generation of static electricity: an instrument very like the modern static or Wimshurst machine, except that the electricity was generated by friction instead of by induction. These instruments had been much improved since their original introduction by von Guericke about a hundred years previously. There was also the Leyden Jar which had recently been discovered by von Kleist, the dean of the Cathedral at Camin. The Leyden Jar, by permitting an accumulation of electricity, enabled them to a large extent to remedy the defective output of their machines, and thus to give stronger shocks, or as they termed them "*commotiones fortiores*."

The methods adopted appear to have been three: (1) Sitting on the electrical stool or resin, corresponding to the present method of static charge or bath; (2) drawing off sparks from a person so charged, the Static sparks of the present day; (3) applying sparks to a patient from a charged Leyden Jar, a practice not used now. The alleged cures which fill the greater part of Wesley's book were collected by him from all sources, and are for the most part of a very absurd and unreliable character.

Though unqualified practitioners, both Wesley and Lovett had a very real and

genuine belief in the efficacy of electrical treatment, and their enthusiasm did a great deal for the early development of a science of which they were the first practitioners in this country. Moreover, their work and their writings survived them for many years, and were frequently quoted by their qualified successors. Priestly, in his very valuable book, "*The History of Electricity*," thus comments on their work:

This account of the medical use of electricity by Mr. Lovett and Mr. Wesley is certainly liable to an objection, which will always lie against the accounts of those persons who, not being of the faculty, cannot be supposed capable of distinguishing with accuracy, either the nature of the disorders, or the consequences of a seeming cure. But, on the other hand, this very circumstance of their ignorance of the nature of disorders, and consequently of the best method of applying electricity to them, supplies the strongest argument in favor of its innocence, at least. If in such unskilful hands it produced so much good, and so little harm, how much more good, and how much less harm would it possibly have produced in more skilful hands!

Jean Paul Marat (1743-1793), scientist, revolutionist, oculist, pulmonary specialist, and electrotherapist, forms one of the most interesting figures in the history of electrotherapy. This man of many parts spent ten years in London, practising part of that time in Conduit Street, Soho, which was the Harley Street of the period. In a letter to his friend Phillipe-Rose Roume de Saint-Laurent he states that he came to London to educate himself in science and to avoid the dangers of dissipation. He frequently attended the meetings of the London scientific societies, and on June 30th, 1775, was admitted to the degree of M.D. St. Andrews.

Among other pamphlets published by him during his stay in London were two on medical subjects: "*An Enquiry into the Nature, Cause, and Cure of a Singular Disease of the Eye*"; and "*An Essay on Gleets*."

He did not practise electrical treatment during his stay in England.

On his return to Paris, he wrote to his friend, Phillipe Saint-Laurent,¹ on November 20th, 1783, that he met with great success in his practice as a physician, that he had the good fortune to restore to health many sick persons of distinguished rank, whose lives had been despaired of by their physicians. The fame of his surprising cures drew to him a prodigious crowd of sick persons; and his door was continually assailed by the carriages of patients who came to consult him from every quarter. His success gave umbrage to the doctors of the faculty, who calculated with sorrow the big amount of his profits. They consoled themselves by slandering him; and though a large number of persons whose friendship for him was founded on esteem took up his defence, their voices were drowned by the clamour of his opponents. Disgust, inseparable from the practice of medicine, made him sigh once more for the retirement of his library, he gave himself up entirely to his favourite studies. Could he have foreseen that he was going to make himself a fresh cause for envy?

As the result of thirteen months work in retirement, he published his "New Discoveries on Fire." Subsequently he published his "Discoveries on Light," which involved him in a quarrel with the French Academy of Science, and led in due course to the publication of his pamphlet, "Discoveries on Electricity," which he states had the approval of several famous physicians. After he had worked at the physical side of electricity, he arranged to work at its medical side, "a scientific subject that greatly interested society."

The writing of his book on this subject led Marat to take part in a discussion, held by the Academy of Lyon, on the value of electricity in medicine. This disputation appears to have been rather acrimonious, for the judges, in awarding the prize to the Abbé

¹ Marat, *The People's Friend*. By E. Belfort Bax.

Bertholon, for his paper entitled: "The Influence of the Electricity of the Atmosphere on Diseases," expressed their regret that he had not been more courteous to his distinguished opponent Marat. Bertholon made extravagant claims for the use of electricity in all diseases, basing his theories upon pure empiricism rather than upon actual experience. He contended that all diseases were due either to an excess or a deficiency of the electric fluid. The former he treated by the electric bath or charge, the latter by drawing off the excess from the back of the hand of the electrically charged person. A somewhat similar theory to that of Bertholon, and one but little less absurd, was recently advanced in this country by an electrical engineer, and, like the absurdities of the past, it was not lacking in followers, even among medical men. Marat would have nothing to do with such nonsense; he showed definitely in what diseases electricity should be used, he determined the method of its administration, and defined the efficiency of its action. Marat, indeed, makes no small claims for his book, "*Mémoires sur l'Electricité médicale*," published in 1784: "One will not find in this publication, any hypothesis, any uncertain experiment, any doubtful principle, any hazardous conclusion; it is upon facts alone, but upon simple and constant facts that all my reasoning is based." Marat, to some extent, at any rate, justified these ambitious claims, for his work was certainly on far more scientific lines than the writings of his predecessors; or, even than the publications of many of his successors.

Marat held that the use of electricity was justified in the treatment of external indolent tumours, oedematous engorgement of the limbs, cutaneous eruptions, paralysis, hemiplegia, rheumatism, sciatica, the colic of painters, enamellers, and founders. He insisted that the duration of a treatment should be definitely fixed, that there should be a dosage of electricity as well as of other medicines. A séance should last for twenty

minutes or more; it should be repeated three or four times a day. Strong shocks should not be used at all; they should be weak at first, and be gradually increased in strength.

Marat's writings, whether political or scientific, reveal him as a man of overwhelming self-conceit, obsessed by the idea that the hand of everyone was directed against him. Such a temperament as this, united, as it clearly was in the case of Marat, with outstanding ability, affords the nucleus for the development of the most extreme, revengeful and bloodthirsty revolutionist.

James Graham (1745-1794), of Edinburgh, affords a striking example of an electrical quack, a class which still flourishes in this country, tolerated by an indifferent or indulgent government, and largely patronised by a gullible public. Graham was the son of a saddler at Edinburgh, and is said to have studied medicine under Munro, Cullen, and Whytt at that University. There appears to be some doubt whether he took his degree in medicine. His pamphlets are mostly signed "James Graham M.D." but the "Dictionary of National Biography" states: "It is doubtful whether he qualified at Edinburgh, where, in 1783, he was described as the person calling himself Dr. Graham."

Graham practiced as an aurist and oculist in America, and, perhaps, during a two years' stay at Philadelphia (1772-74) he may have acquired his electrical knowledge from a study of Benjamin Franklin's work. But though he may have learned some electricity from the experiments of Franklin, he certainly did not learn his quackery from that great man, for Franklin was most cautious and reserved in his references to medical electricity. In a letter to Sir J. Pringle, read at the Royal Society, January 12, 1758, Franklin writes he "never knew any permanent advantage from electricity in palsies," and goes on to say that "perhaps some permanent advantage might be obtained if the electric shocks had been accom-

panied with proper medicine and regimen, under the direction of a skilled physician."

On his return to England from America, Graham practised electrical treatment at Bath, Bristol and London. In 1779, we find him at Aix la Chapelle, where he treated Georgina, Duchess of Devonshire. It apparently happened with Graham as it has happened with many Harley Street physicians of the past, that the patronage of a duchess proved a stepping stone to fame and fortune, for in the autumn of the same year he established himself at the Temple of Health, Adelphi House, London. He fitted up this establishment with most elaborate electrical machines, including an electrical throne, insulated upon glass pillars. He claimed to have spent £10,000 upon the installation. This palace did not long satisfy his ambitions, and he soon afterwards opened "The Temple of Health and Hymen," at Schomberg House, Pall Mall. It was here that he acquired his chief claim to fame by becoming associated with the notorious Emma Lyon, afterwards the celebrated Lady Hamilton, the companion of Lord Nelson. Graham is said to have exhibited the "frail Emma" as the Goddess of Beauty, and to have utilised her as a nude model for his lectures on health.

Horace Walpole, in his Letters, writes of Graham: "The most impudent puppet show I ever saw, and the mountebank himself the dullest of his profession, except that he makes the spectators pay a crown apiece." Southey describes him, as "half enthusiast, half knave."

Graham's method of treatment consisted in placing his patients either in baths, or on a "magnetic" throne through which electrical currents were passed. His chief specialty was the treatment of sterility; its cure was effected by sleeping in the "Celestial Bed" at the modest fee of £50.

A copy of the Morning Chronicle, Thursday, April 24, 1783, contains the following advertisement of Graham's establishment:

Temple of Health and Hymen, Pall Mall. Dr. Graham begs respectfully to inform the Public that this evening and every evening this week, he will, at the very earnest request of many Gentlemen of the Navy and Army, lately arrived from abroad, deliver his very celebrated Lecture on Generation &c. . . . Admittance two shillings. A valuable pamphlet will be given to every Lady and Gentleman as they enter the Temple. Patients are electrified and Dr. Graham may be consulted as usual.

Graham was an early exponent of the virtue of the mud bath, a form of treatment of which he showed his personal appreciation by burying himself in the earth for hours at a time. On one occasion he carried out this treatment in company with a young lady from Newcastle. Having first powdered their heads, they stripped to their shifts, and were buried in the earth up to their chins; they were likened by a spectator to two blooming cauliflowers.

Graham decried flesh eating and alcoholic excess; he stated that he never ate more than six pennyworth of food a day. He advocated cold bathing, open windows, and sleeping on hard mattresses. He asserted that all diseases were caused by wearing too many clothes. He appears to have carried this idea to extremes, for Southey records that "he would madden himself with opium, rush into the streets, and strip himself to clothe the first beggar he met."

Towards the end of his career he suffered from religious mania, and at Edinburgh was confined to his house as a lunatic. Had Graham lived at the present time he would doubtless have been a leading Christian Scientist, for in one of his later pamphlets, he describes himself as "formerly a Physician, but now a Christian Philosopher."

Of such a kind then were the god-parents of electrotherapy. Can we wonder that this science, introduced to the notice of a critical and captious profession by such sponsors as these, passed through a troubled and neglected childhood?

In the development of electrical treatment, two names stand prominently forward, and it is somewhat surprising that under such an aegis as theirs, electricity did not share more actively in the therapeutic methods of the past.

The most prominent and notable name connected with medical electricity, is that of Duchenne, of Boulogne, "the man who played a preponderating part in the researches and discoveries upon which the edifice of neuropathology has been erected."

We should not forget that the foundations of Duchenne's work rested upon that method of electrification which "surpassed his expectations in yielding scientific and practical results of the highest importance."

The other name is that of Dr. Golding Bird, a distinguished physician of Guy's Hospital, who, in the autumn of 1836, started an electrical department in that hospital; and who, in the spring of 1847, delivered a course of lectures before the Royal College of Physicians, "On Electricity and Galvanism in relation to Physiology and Therapeutics."

I will conclude by entirely associating myself with this opinion expressed more than seventy years ago:

Electricity has by no means been fairly treated as a therapeutical agent; for it has either been exclusively referred to, when all other remedies have failed—in fact, often exclusively, or nearly so, in helpless cases—or its administration has been carelessly directed, and the mandate, "Let the patient be electrified," merely given without reference to the manner, form, or mode of the remedy being for an instant taken into consideration. Conscientiously convinced that the agent in question is a no less energetic than valuable remedy in the treatment of disease, I feel most anxious to press its employment upon the practical physician, and to urge him to have recourse to it as a rational but fallible remedy, and not to regard it as one capable of effecting impossibilities.

THE HISTORY OF THE TREATMENT OF THE SURGICAL AFFECTIONS OF THE LACHRYMAL APPARATUS,¹

By CHARLES GREENE CUMSTON, M.D.²

GENEVA, SWITZERLAND

THE obliteration of the lachrymal tract by surgical measures is a relatively modern therapeutic acquisition. Regardless of some timid attempts—quickly given up—during the eighteenth century, surgical measures were not adopted until the middle of the last century. By this, it is not intended to convey the idea that destruction of the lachrymal tract had never been done before; quite on the contrary, this was an operative result obtained by surgeons in all ages, but unwittingly, because although Celsus, Ambroise Paré and later Master Jean, Pellier de Quengsy and J. L. Petit cured lachrymal fistulae in spite of very different therapeutic measures employed, these all tended to the same unrecognized result, namely, obliteration of the lachrymal tract.

In the first period which extends from antiquity to the eighteenth century, surgeons were ignorant of the anatomy and physiology of the lachrymal tract or at least they were not inspired by knowledge obtained by dissection and clinical observation. Nevertheless it is not exact to maintain that the ancient practitioners had only false ideas as to the secretion and excretion of tears, as many are wont to uphold, because even in the second century, Galen, in his work "De usu partium" makes it evident that although his physiological knowledge may have been wanting he at least possessed fairly precise notions on the anatomy of the lachrymal tract. He says:

¹Opening lecture to the Course of the History of Medicine, delivered Nov. 10, 1920.

²Lecturer on the history of medicine at the University of Geneva.

Confluunt per foramina haec in nares omnia oculorum excrementa et medicamenta quidem ocularia, multi plerum que non multo post inunctionem expuerunt, alii vero emunxerunt. Ad eundem enim usum meatus hic ab angulo in nasum est perforatus ad quem et nasus ipse in os.

Ne igitur per angulos excrementum affluat, neve assidue lachrymemus prodictis meatibus corpora haec carnosia fuerunt apposita quae prohiberunt quidem ne oculorum excrementa per angulos evacuerentus ad proprios autem meatus impellerent.

Ad haec quidem accurate a natura fuerunt provisa et praeterea adhuc quae in palpebris sunt tenuia admodum foramina quae paulò sint extra maiorem angulum ad nasum enim usque pertinent, tenuem quae humorem dant vicissim atque accipiunt.

It would seem that the knowledge contained in the above paragraphs should have enlightened the pathologist concerning these structures and still I can assure you that it was only after Anel that the lachrymal duct was taken seriously into consideration in morbid processes arising in the greater angle of the eye. In reality, before Anel, the lachrymal tumor—to which the name of *anchylops* had been given on account of its peculiar situation—was looked upon as a vulgar mucous cyst (*meliceris* was the name given it at the time) which by suppuration could be transformed into an abscess (*apostema*) resulting in a fistula, in which circumstances the tumor was called *oegilops*. The latter was considered merely as an ulcer complicated or not by "callosities and caries of the os unguis." The surgical treatment of these morbid processes was confined to the use of the potential or actual cautery, the skin

having first been incised or the fistula dilated.

Strange as it may appear, this empirical and rudimentary treatment was far from being always ineffective. The use of the cautery and solid or liquid caustics resulted after a time in obliteration of the structures, during which abundant suppuration of the region of the lachrymal sac continued. In point of fact, the ultimate outcome was identical with the results obtained today, but in a much shorter time, by destruction of the sac with the thermocautery.

In the medical writings prior to the first century A.D., nothing is to be found that might lead one to suppose that a surgical treatment of anchylops and oegilops was known. The documents in our possession, known as the "Hippocratic Collection" and which date back to the fourth century or more, before Christ, are silent on this subject and it is only in Celsus's "De re medica" that the first description of the treatment of lachrymal fistula with a cautery iron is to be found. Celsus preferred the actual cautery to the potential "*quod et tardius et non idem facit.*" Here is the exact text:

Ergo hamulo summum ejus foraminis excipendum; deinde totum id cavum, sicut in fistulis dixi, usque ad os excidendum; oculoque et ceteris junctis partibus bene obtectis, os ferramento adurendum est: vehementiusque, si jam carie vexatum est, quo crassior squama abscedat. Quidam adurentia imponunt, ut atramentum sutorium, vel chalcitidem, vel aeruginem rasam; quod et tardius et non idem facit. Osse adusto, curatio sequitur eadem, quae in ceteris ustis.

A century later, Galen, although differentiating between lachrymal fistula and oegilops, resorted to the use of the actual cautery in the cure of suppuration of the unguis and at the same time mentioned the fact that certain practitioners preferred the use of the trephine or other perforating instrument to attain the same end.

At about the year 550, Aetius gives more precise details in the description of oegilops and its surgical treatment in his "Medici graeci contractae ex verberbus medicinae tetabiblos." Here is the text as given in the 1544 edition of this work.

CAP. LXXXVI

DE USTIONE AEGILOPIS

At in quibus affectio diuturna os corrumpit, aut ad angulum in fistula abiit, cicatrice superficiei inducta, in his triangulari incumbētis carnis detractioe facta et angusta sectionis parte ad angula adaptata, et deinde spōgia oculo imposita, cauteria ignita ipsi sectioni adhibemus, usque ad os ad squamae remotionē inurētes, ita ut etia obliquas in ulceris cavitate partes, et maxime supernas inuramus; si enim post primi cauterii, admotionē spectaueris, apparebit tibi augustissima cauernula, supernē ex obliquis humorē ulcri transmittit, ut lacryma. Quare oportet cauteriū, cauernulae fortiter apprimere. Et ubi sufficiens factā fuerit ustio, lenticulam coctam cum melle adhibere; elapsa uero crusta, et ulcere aliquomodo purgato, alumen scissum tritu terebinthina liquida exceptum modica, ut emplastri forma fiat, cavitati ulceris indimus, et splenium ex lode factum, supra ulceris cavitate imponimus, Celerrime enim repurgat, incarnat, et cicatricem inducit. Probē etiam incarnat nitrum lenissimē tritū inspersum. Utere, et probabis.

CAP. LXXXVII

DE ANCHILOPE

Circa predictum locu ubi oegilops fit, colligitur etiam lentus humor melleus aut pultaceus, plerumque in tunica contentus, dolorem uo inducēs, paulatimque augescens. Curatur autem chirurgia, quemadmodum etiam reliqua circa corpus atheromata, ita ut superficies, dissecetur, et subexcorietur, et tunica humorē continens funditus tollatur. Post sulationē autem ipsius, quo secura curatio fiat, et affectio non regeneretur, cauteriis ignitis crustas loco inurinus. Et deinde lenticula cum melle curamus. Elapsa uero crusta, alumine cum terebinthina, velut antea dictū est, usque ad cicatriceus indictam.

The Arabs, whose medical writings are translations from the Greek writers but with not a few original additions of considerable value in many instances—notwithstanding the contrary opinion maintained by some, particularly the Germans—some centuries later took up the same procedures of cauterization. Avicenna, at the commencement of the eleventh century, employed both the actual and potential cautery and Rhazes warns the operator against injuring the nasal branch of the ophthalmic nerve in operation for lachrymal fistula. In the surgical writings of Albucasis, in which the very free use of cauterization is highly extolled, you will find a figure of a cautery used in that day for the cure of “fistula in the angle of the eye.” Cauterization by means of melted lead applied to the parts by a specially constructed funnel for the purpose, was also used. It has been maintained by some that Albucasis used the cautery for simple lachrymation, but I do not know upon what writing this assertion is based; the cauterization was applied “once on the middle of the head, twice on the temples and twice on the neck” and *not to the lachrymal sac*, because the old Arabian surgeon believed that in chronic lachrymation “the cause is in the veins and arteries which lie on the surface of the head (show themselves on the exterior of the head) and that it is evident that this affection is due to cold, thick and pituitary humors.”

I have been unable to find any other therapeutic indication than that given in the writings of the Arabian oculists such as Ali Ibn-el-Aïssa, Omar, Haliija, Salah Ed Dinn and Sadid Eddin-bel-Rahika.

In spite of the important treatise on surgery by Guy de Chauliac in the fourteenth century, the science of medicine made little progress in any branch during the greater part of the sixteenth century although it had awakened from the deep sleep into which it was plunged during the mediæval period. It would even seem that

the very precise notions of Galen and Aetius had even been forgotten and it is curious to find this ignorance reflected in a passage of the immortal Rabelais who shows how in his day lachrymal secretion was conceived when he says:

Ensemble eux commencaire, maistre Tonotus, à qui mieulx mieulx, tanque larmes leur venaient es yeulx, par la vehemente concution de la substance du cerveau, à laquelle furent exprimées ces humidités lachrymales, et transcoullées jouxte les nerfs optiques.

Ambroise Paré offers no other explanation of lachrymal fistula in his description of the eye, into the anatomical composition of which enters:

Finablement une glande située au grand angle d'iceux (the eyes), sur le trou assez insigne et evident, lequel descend dedans les narines, tant d'un coté que d'autre; et ce pour prohiber et défendre que les excemens du cerveau, descendans par lesdites narines ne régurgitent aux yeux, ainsi que nous voyons advenir à ceux qui ont la susdite gland consommée lesquels pleurent continuellement: et telle affection est appelée fistule lachrymale.”

The supposition that the tears coming from the brain flow toward the eye by way of the lachrymal orifices was still maintained by Mercurialis and Fallopius. In his “Observationes anatomica” the latter states:

Duo foramina parva—per hos meatus major lacrymarum pars ut ego in fletibus mulierum observari, ad oculos emanat, ipsorum que sinus aliquando exulceratur fit que collata sanie species illa ulceris quae fistula lacrymalis dicta est.

The honor of the first exact description of the anatomy of the lachrymal tract is due to Carcanus, of Milan, a pupil of Fallopius. In 1574, he gave the true position of the lachrymal gland, described both the lachrymal ducts and lachrymonasal duct and at the same time showed the exact route taken by the tears. Nevertheless, in

spite of all this progress in anatomy of the parts, the treatment of lachrymal fistula continued the same and the chapter in Paré in which he describes his treatment of lachrymal fistula³ gives an excellent summary of the treatment of this ocular affection during the sixteenth century.

Pour la curation, il faut que les choses universelles precedent les particulieres. Donc si l'ulcère n'est assez ample, sera appliqué dedans tentes d'esponge: et pour corriger et consumer la chair superflue de la dite glande, on appliquera dextrement au profond, medicamens catheteriques, comme poudre de vitriol calciné, ou de mercure, eau forte, huile de vitriol, on un petit cautère potentiel.

Et si tels remedes ne profitent, et qu'il y eust carie en l'os et que le patient voulust endurer, on doit user de cautère actuel, lequel ie loüe plusque le potentiel, pour-ce que son operation est plus prompte et seure: et puis bien asseurer qu'a plusieurs l'ay appliqué avec heureuse issue. En tel cas aucuns praticiens veulent que ledit cautère soit d'argent, les autres d'or, pour-ce, disent-ils que tels metaux sont plus excellens que le fer: mais quant à moi, ie n'y trouve aucune raison, parce que c'est tousiours le feu qui opere, et non la matiere des cautères.

La figure du cautère doit estre de figure triangulaire, et un peu aigu en son extremité à fin que plus promptement il face son effect. Et alors qu'on l'appliquera, on doit bander l'oeil sain, de peur que le malade ne voye le feu. Et luy sera tenu la teste ferme, de peur qu'il ne la tourne de costé ny d'autre. Et sur l'oeil fistulé, sera appliqué une piece de fer, laquelle se cambre selon la cavité du grand canthus de l'oeil, en laquelle y aura un trou qui sera posé à l'endroit de la fistule, par lequel on appliquera le cautere: ce faisant on ne touchera nulle autre partie que l'endroit qu'on veut cauteriser.

In the seventeenth century, anatomy progressed but surgery in no way profited by it. In 1652, Marchettis published a very excellent description of the lachrymal gland as well as of the lachrymal apparatus, while Stensen, in 1662, completed the work done

by Carcanus many years before and attempted to disprove the then reigning opinion that the tears came directly from the brain. He satisfactorily demonstrated that they formed in the lachrymal gland "which separated them (the tears) from the blood."

In 1685, Nück refers to total obliteration of the lachrymal ducts, the result of caustic applications, but he does not offer any therapeutic conclusions and it may be said that all surgeons of this epoch merely followed the teachings of Paré in the treatment of lachrymal fistula.

Finally, with the advent of the eighteenth century, the treatment of diseases of the lachrymal apparatus entered into a new era and in 1713, Anel performed catheterism of the duct for the first time, thus inaugurating a completely novel procedure. At about the same time Master Jean began to render an exact understanding of lachrymal morbid processes, but during ten years, beginning in 1734, the famous French surgeon, Jean Louis Petit contributed much to show that these processes were caused by some obstruction to the flow of the tears and from this time on all surgical treatment was directed toward reëstablishing permeability of the lumen of the lachrymonasal ducts.

Theoretically, the point to be attained was to restore the working of an hydraulic machine that was out of order and this machine whose anatomical make-up was known, as well as the immediate cause of the disorder which prevented the tears from flowing into the nasal cavity, had to be directly dealt with. It was thought that the tears were retained in the lachrymal sac, dilating and distending it; that they there produced tension, inflammation, rupture and resulting fistula—the cause of all being occlusion of the lachrymal siphon. To do away with these effects all that was necessary was to clear the siphon so that the tears might flow off into the nasal cavity which would put a stop to lachrymation and

³Livre XV, Chap. 16.

retention of the tears, therefore obviating the occurrence of inflammation, rupture and the resulting fistula. Consequently the treatment with the cautery fell into discredit.

J. L. Petit even remarked that it was rather astonishing that the cautery had ever been able to give any good results, but, although absorbed in his conception of the siphon action, he nevertheless reconciled his theory with facts by supposing that the ancient therapeutic procedure had as a result the creation of an artificial route conducting the tears to the nose.

To reestablish the flow of tears at all costs was then the end to be obtained by the surgeon and regardless of this end in view the procedures employed for obtaining lachrymal permeability in reality resulted in obliterating the lachrymal tract. All this was most fortunate for patients, who recovered in spite of the theory, an event not unknown even in our enlightened times!

All the operative procedures of the eighteenth century inspired by Petit's theories can be conveniently placed under two headings. In the first are comprised all the methods which had in view the reestablishment of a normal communication between the nose and lachrymal sac. This result was aimed at, if not obtained, by various types of catheters—*algæ* as they were called—*canulæ* or *setons*, introduced and left *à demeure* for a very long time. They were introduced either from the sac towards the nasal fossa through the obstructed nasal duct, or from the nasal fossa towards the sac, by performing permanent retrograde catheterization. The first of these procedures was successively employed and described by Saint-Yves, Gendron and Joubert while the second was introduced by Laforest and underwent some changes at the hands of Cabanis. Those interested in the subject will find a detailed description of these various techniques in Pellier de Quengy's book written at the time.

In the second category, resorted to

especially when necrosis of the unguis existed or when complete occlusion of the lachrymal duct was present, the reestablishment of a normal course for the tears was given up and in its stead an artificial route was created by perforating the bony septum separating the sac from the nasal fossa with a trocar or actual cautery. This method was advocated and practiced by Master Jean, Petit, Pellier de Quengsy, Dionis, Guérin and Saint Yves. It is hardly necessary to remark that the multiple cauterizations combined with numerous repeated traumata that all these procedures necessarily inflicted on the lachrymal tract, resulted in complete destruction of the mucosa, hence the greatly dreaded complete and permanent occlusion could only be the final result.

During this period of infatuation for conservative procedures, a book appeared in 1748 from the pen of Angelo Nannoni, of Florence, entitled: "*Dissertation chirurgiche della fistola lacrimale*," in which he states that having observed that recoveries from lachrymal fistulæ with complete stenosis of the duct did not necessarily bring about incoercible lachrymation, he returned to the ancient procedure of cauterization with caustics. After having made a good sized incision in the integuments and without further thought of attempting to reestablish the lachrymal functions, he cauterized the sac with an ointment composed of alum and red precipitate and when this caustic was found ineffective he used a stick of silver nitrate.

His son, Lorenzo Nannoni, employed the actual cautery, but both obtained encouraging results; however, their tentatives were overlooked or forgotten not to say derided by those maintaining the mechanical theory of the times.

The great anatomist and surgeon Scarpa, whose merit reposes upon a kind of foresight into the inflammatory theory of lachrymal morbid processes, was very harsh in his

criticism on the essay made by his compatriots of Florence and he says thus "to destroy, occlude, and entirely harden the sac is, strictly speaking, merely exchanging one affection for another equally troublesome, such as continual lachrymations," etc.

However, when instances of either spontaneous or surgical occlusion of the lachrymal tract continued to multiply, the procedures of destruction by means of caustics or the actual cautery were at length resorted to again in the nineteenth century in most countries, and from 1850 all the classic works on ophthalmology discuss this procedure while many opuscles appeared advocating its use.

Methodical excision of the sac has an entirely modern history and was probably never done before Platner, although an indefinite attempt in this direction was made by Dionis and later by Deval. The latter appears to have attempted it partially, stating that "l'excision préalable de larges lambeaux de la tunic muqueuse du sac et une compression methodique du grand angle apres la chute des escarres et l'établissement des bourgeons, seraient probablement fort utiles dans des circonstances pareilles," but it is doubtful if he ever put the procedure to practice.

Finally, in 1868, Berlin, a well-known oculist of the time, first performed a methodical excision of the lachrymal sac.

ANCIENT WRITERS ON POISONS

AFTER Galen, Aetius was the most learned of all the many later writers on Poisons, and is a valuable source for the historians of toxicology (see Rords, *Rhein. Mus. Phil.*, Bd. xxviii, s. 268ff). He lived in the sixth century, was a student of Alexandria, and resided in Byzantium where—probably under Justinian—he held high office. His great compilation on Medicine has come down to us almost complete. Of this work the toxicological chapters are but a part, and are taken more or less, through Nicander, from Apollodorus; though much richer in content. For pharmacy he was indebted to Archigenes—probably through Philumenus, Oribasius, Scribonius Largus, and others; indeed he laid a very large number of his predecessors under contribution. One Aeschrion, an empiric of Pergamon, a teacher of Galen, seems to have been another of the chief sources of Aetius. In his turn he was a source for Alexander of Tralles and Paul; as also for Photius, Nonnus, and other

voluminous compilers of the centuries down to the thirteenth, such as Nicholas Myrepsus and Alexandrinus, from whose long-winded recipes, many of them under handsome titles, such as *The Antidote of Helen Augusta*, *The Secrets of Master Alexis*, and so on, had a prodigious vogue; the greater because the popular collection of this Nicholas was commonly confused with the small *Antidotarium* of Nicholas Praepositus of Salerno, a century his senior. Of his sixteen books the first two deal with vegetable and mineral remedies; the thirteenth with iology and antidotes. The earliest modern Dictionary of Drugs was the *Clavis Sanationis* of Simone d. Cordo of Genoa (Simon Januensis, d. 1330) published at Padua in 1474. It was almost entirely galenical, and by its vogue did much to rivet the chain of polypharmacy upon Western Europe.—From *Greek Medicine in Rome* by Sir Clifford Allbutt, K. C. B.

THE FORERUNNERS OF EMPEDOCLES AND THE NATURE PHILOSOPHERS

By JONATHAN WRIGHT, M. D.

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BEFORE the time of Hippocrates it is quite evident that medicine was not only more closely allied to and dependent on religion for its inspiration and support, but what we are pleased to think of as the scientific alloy in its frame-work bound it more intimately with cosmic philosophy than has been the case since the time of the nature philosophers. This has been more specifically illustrated in connection with Empedocles in the themes of my previous essays which have appeared in this and various other journals ^{1, 2, 3}. Students of medical history must realize that it is quite impossible to pursue the threads of the fundamental ideas of medical science in an intelligent manner without a thorough understanding of the course and evolution of knowledge in cognate sciences and even in fields usually considered as quite remote from medical interests. If this is to some extent evident in the study of more recent eras of medicine it presses still more for recognition while one is dealing with those remote epochs when the intellectual paths of life were so much less sharply defined, one from another, than has been the case in the few centuries which have elapsed since the Renaissance. The consideration that even the most distant illumination may yet throw a welcome light upon that small corner in ancient civilizations upon which our attention is intently fixed renders this imperative. But so apparent is this that it does not seem necessary to insist upon it as an excuse or to refer to it at all except as an explanation of the reason for going so far afield to seek the sources of the Greek medical thought with which our own is involved at its origin.

There is an interest chiefly medical¹ and another interest purely personal² which cluster around the name of Empedocles in medical history, but aside from these there are other connotations of thought associated with it which, so far as I know, have not been given prominence. I do not mean the bearing the cosmic philosophy of Empedocles has on that of the nature philosophers. His cosmic theories are quite evidently derived from more original predecessors and his significance as the connecting link between the old mystical elements of primitive man and the experimental physiology of today has been sufficiently emphasized in another paper.³ It is not difficult to find a suggestive correlation between the thought of the nature philosophers of early Greece and the thought of primitive men, which modern ethnology has revealed to us. This, however, it has shown to be associated with a very much less evolved general state of social relations than it has been the custom to attribute to those active in the nascent intellectual achievements of early Greek civilization.

Empedocles serves again as a medical center from which to take a fresh start further to elucidate the paths taken by ancient primitive ideas toward the first of what is essentially modern scientific thought. The career that homœopathic doctrine has had in medicine began with the primitive medicine man, but Empedocles first domesticated it in such records of ancient Sicilian medicine as we have. Galen, Aristotle, Theophrastus and Plutarch trace it back to him. Like attracts like. By virtue of the affinity which one bit of matter has for another much of the physiology and pathology of his internal economy, much of health and disease in man was explained.

After the exhaustive manner in which the subject of homœopathic magic has been treated by modern ethnologists and especially by Frazer⁴ in "The Golden Bough," only its manifest bearing on the origin of homœopathic medicine need be mentioned. There can scarcely be a doubt of the origin of the thought of Empedocles. He gave it a refinement and an adaptation to the more intelligent practice of medicine which even in comparatively modern times has given ample evidence of its primitive vitality. The antithetic doctrine of Alcmaeon, the reputed preceptor of Empedocles, who taught that opposites are continually meeting and balancing one another and that during this equilibrium we find the human body in a state of health, illness resulting from its disturbance, has also been an underlying concept of medical men in modern as well as in ancient times. It is rather remarkable that we find both of these persistent and somewhat opposing ideas making their first appearance in medical history as originating with or rather as developed by a master and his pupil in the Sicilian school of medicine.

It is not, however, with the antecedents and the course of the medical doctrines of similars and opposites that I am here concerned. It is more especially with the turn Empedocles gave to theories of the elementary condition of matter—theories entertained by the Asiatic Greeks who had preceded him—that his name is mentioned by historians. He laid the foundation of the humoral theory out of these previous conceptions of elementary matter. I have elsewhere⁵ briefly reviewed these and as briefly referred to the racial factor in their development. I desire here to attempt to trace them further back than the dates assigned to Thales and his successors by referring to some of the evidence which associates them first with the records we have of ancient oriental thought.

I do not know of any trace of them in

the records of the Egyptian civilization—records so much more copious in many respects than those of India and Persia. There are so many points of resemblance between the Vedic hymns of the Hindus and the Persian Zend Avesta that we can scarcely doubt from etymological evidence and from the imagery set forth in them as well as from much other internal evidence, that they issued from the same racial mentality.⁶ But when we come to the question of chronology, to the question of the dates of these poems or of the many originally separated parts in them, we enter upon a very ill-defined territory. We can easily discern traces of the tribes of the Medes and Persians or of those tribes which dwelt in the territory occupied by them when, perhaps much later, they come into clearer view of history. We find them in the Babylonian records of the dynasty of Lagash (3000 B.C.); but there is no surety that these hill dwellers of Elam were the racial ancestors of the people over whom Cyrus the Great and Zoroaster wielded political and religious dominion.

The language of the Zend Avesta is said⁷ to be a Medic tongue. The parts collected as a whole appear to have dated at least from the time of Zoroaster, whose period seems to have been most plausibly fixed by Jackson⁸ in the seventh century B.C. In the Zend Avesta⁹ it is directed that the human corpse be "laid on the summit of a mountain top, far from man, from water, from tree, from fire and from the earth itself." Darmstetter remarks that the rite seems to have been evoked by a primitive idea which also seems to lie at the bottom of sanitation and the prevention of contagion. It originated from the notion of the holiness of the elements—fire, earth and water. These life elements were thought to be contaminated by contact with the dead body. There are a number of other passages which are referable to this underlying thought of the purity of the elements

and a larger number implying the pollution wrought by the dead animal body, itself suggestive of the ideas with which Greek feeling was imbued. In the Persian devotional literature, then, we find not alone a community of religious sentiment, which was too universal to be distinctive, but in an epoch which covers fairly well the lives of the Asiatic Greek nature philosophers and in the Zend Avesta, we find an assemblage of records in which the cosmogony of the Greeks is intimated as occupying the thoughts of an oriental people with which they were in direct political relation. It is true we have to be on our guard against the influence of Greek copyists on the question, but that does not obtrude itself. The air which Anaximenes included among the elements must have been contaminated by dead bodies, however high their perch in the Persian cemeteries. The air we find included in the Hindu anthologies, but not in the Persian.

There are various indications in early Greek philosophy that the evolution of the thought of the air as an element was a later development, at first associated with the more ancient fire or heat, so prominent in the Sun worship of which Zoroaster was an exponent. If we rightly infer from the accounts of his experiment with the clepsydra, it was Empedocles who first incidentally demonstrated the reality of its existence, but there can be no question that in theory, at least, the knowledge of it was a part of the body of scientific belief existing before him. However, we find earth, fire and water as the holy elements in the "Zend Avesta" and these, with the air, are the tetrad out of which, with the tetrad of the qualities, Empedocles constructed the lines along which the humoral theory developed in the writings of Hippocrates, and especially in the works of Galen. We may see in the advocacy of a single element by one or other of the nature philosophers—water by Thales, fire by Heraclitus—the tendency to a

monatomic and a monotheistic doctrine which was rising in Asia Minor among the Greeks on the coast in opposition to the trinitarian of the Elamite hinterland. Anaximander, Xenophanes and Heraclitus took wider views, but they, as well as Anaximenes and Thales, all took a unitarian view of the universe. Empedocles united all the elements into which matter had been divided before him, into a tetralogy which had a long career in medicine.

We have thus far no great assurance that these ideas were distinctive of any nationality or territory located in the Mediterranean basin in the seventh century B.C. These ideas may well have pervaded the whole area and the chance preservation of fragments has led us to locate them geographically and to attach them too exclusively to certain personages. I think few will fail to agree that this tendency has existed, perhaps to a large extent, in ancient history as it is still conceived.

I do not want to drift into the vexed question of Hindu claims to priority in the arts of civilization. At best, the evidences for and against such assertions are only too meagre, and at any rate I am entirely too much of an amateur in such matters to present them properly. The Hindu claims he originated Greek philosophy, medicine and art. His western rivals deny it, and since they are now his lords paramount they are pleased to say they have the best of the argument and I believe them. Most of the white Aryans believe that Alexander carried these arts to Hindus a thousand years and more after the first Aryan flood surged through the foothills of the Himalayas into India. The Rig Veda, critics think, bears indubitable internal traces of that so-called Aryan invasion. Accepting this for what it may be worth as an historical inference and without going into the question discussed by Hewitt¹⁰ and others as to the amount of culture the white men found there, it is quite sufficient for our purposes to

take note that many commentators trace in the "Rig Veda" the southward progress of these tribes. Very much older than the Zend Avesta these ideas appear in the early books of the Rig Veda, in which the most striking resemblance to the Zend Avesta is to be found. This resemblance is of such a nature as to suggest that at the time the migrating tribes or prehistoric army left the Medes and Persians behind them they all worshipped a Sun God as a beneficent being. Fire was a god to the men from the Boreal regions of the Danube and the Russians and he remained such in the cool uplands beyond the Caspian Sea; but when the tide rolled on into the torrid zones of India to the south he became something very much like a devil.

There, as in the arid plains of Babylon, it was water that was a god. The striking benefits, which the forces of nature confer upon man, bring him to deify, worship and implore them in their personified conceptions. Ea was first a local god of Eridu on the Persian Gulf. The city was the seaport of the primitive Chaldeans and it was owing to this, Jastrow thinks, that the god became the personification of the watery element itself. However, the stimulus which preserved and perpetuated his eminence as a god in the plains of Mesopotamia was the marvel of the recurring vegetation which followed his yearly visit to the parched wastes. The Chaldeans turned to him for medical relief just as the Hindus did to Amrit.

Amrit is in the waters, in the waters there is healing balm.¹¹

The waters have their healing power; the waters drive disease away.¹²

Citations from the Babylonian as well as from the Hindu record might be multiplied. What conclusions are we to draw from them?

We well know from archaeological data that the Babylonian testimony was extant

thousands of years before Thales. We can hardly doubt that the Rig Veda long antedates him and the Zend Avesta is at least as old as Heraclitus. Had the Medes and Persians discussed the elementary constitution of matter before Cyrus the Great? Had the Aryans talked of it on their way to India? Hardly. But we may be permitted to conjecture that the nature philosophy, from which the medicine of Empedocles flowed and which was the starting point of rational cosmical analysis, was the secularization of religious ideas which permeated the shores and the distant highlands of western Asia, probably when Babylon and Nineveh were in their glory. The gods of earth and sky, of the waters, the winds and the sun, are found in the polytheistic galaxy of most primitive peoples. The forces of nature usually have undergone deification by primitive man. When the Greek philosophers faced the riddle of the universe, the fire, the water, the earth and the air were conceptions which had stirred the religious emotions of the preceding generations of men, and the first step toward rational analysis was the division of the universe into the elements familiar to their own minds and to those of their hearers by this ancestry of thought and by social environment. A tendency to monotheism has been noticed by ethnologists among primitive men of an early stage of culture, often, however, it is a later development. It is usually an indication of a trend toward the rationalistic rather than toward the emotional confines of religion. This seems to have been the marked tendency of the nature philosophy—the substitution of a monovalent elementary universe of matter for a polyvalent theurgy. The idea of the elementary division of matter was fused, especially in the teachings of Heraclitus, who so profoundly influenced Plato, with a conception which is essentially one of mutation, the passing of one form of matter into another—an

idea with which modern experimental physics has familiarized us concerning matter vastly more elementary than that of the nature philosophy. The thought that we dwell not in a static universe but in one of change was based on the visible change of ice, water and vapor, and upon many other phenomena where the change is less real than apparent.

I do not perceive that this latter aspect of cosmic analysis receives any emphasis in the fragments of Empedocles. Sicily, within the scope of our knowledge, has always served as the basin for the backwash of the human race from the teeming populations of the African continent, almost in sight of her shores across the Mediterranean. It is in the medicine of the Sicilian school we find the plainest traces of Egyptian culture. Elsewhere² I have pointed out that the tetrad of the elements in the philosophy of Empedocles is matched not only by the tetrad of the qualities, but of the colors and of the humors. I have urged that blood, phlegm and bile fall more or less naturally into the category of the body fluids as they occur to the mind of the medical man, but it seems as though dividing the bile into black and yellow, in spite of our student pre-occupations with bilirubin and biliverdin, was an artificial effort towards a tetralogy rather than a natural analysis. We might naturally ask, as did some ancient critics, among them Hippocrates, why precisely four qualities? Why not three pair or eight definitions of the state of matter appreciable to the senses? It seems as though some deep rooted heredity of thought must have lain like an occult and unconscious mental pressure behind this preoccupation with the number four.

Now Egyptian medicine, like Egyptian architectural supports for the vault of heaven, was steeped in that numeral. Four pillars, one each, to the north, south, east and west, held up the roof of the sky over their heads. Its buildings, the pyramids

of Egypt, still stand four square to all the winds that blow, the most solid foundation, as the ages have proved, of which the mind of man could conceive. When an Egyptian doctor told his patient to take his medicine, it was not t.i.d., in the rule of the Trinity, the "third time for luck," but four times a day. Ebers early noticed that with the weights there constantly occurred in the hieratic scripts the four square numbers, 8, 16, 32, 64. Through the Arabians the English standards, which Herbert Spencer so stubbornly upheld, blind to all argument in the face of *his* mental prepossessions and *his* heredity of thought, are still with us. The grain and the drachm, the inch and the foot, are derived from these old divisions of Egyptian weight and measure. We find this mental preoccupation with four among the Egyptians and among some modern African tribes. With the former it was almost as frequent as the number seven among the Babylonians. The clinging to the number seven in magic is a very curious and a very ancient trait, which has never been satisfactorily explained even by Roscher.¹³ In the Egyptian phylacteries,¹⁴ the repetition of an incantation four times is constantly enjoined on the officiating priests. The intrusion of the Asiatic seven in these magic formulas is also very frequent, but the number four for Egypt and Africa generally, like the number five among the Chinese, is distinctive because of the emphasis it receives. The famous Kyphi prescription, which has been identified in the papyri found in modern times, is carefully stated by Plutarch¹⁵ to have had sixteen ingredients, "being the square of a square, and making the only square surface which has a periphery equal to its area." Whatever that means it appears to have had a profound significance for some. The idea was found of interest by Plutarch, and foreshadows the Abracadabra of the magic of the Middle Ages. By careful examination of the Papyrus Ebers Luring¹⁶ found there a

reckoning for the human body which showed 48 metu or channels which were of such great importance in the physiological theories of ancient Egyptian medicine.

For these reasons von Oefele¹⁷ supposes that the cardinal number of the body fluids in the humors of Greek medicine can be traced back to Egypt. The implication of Empedocles and the Sicilian school in this transmission seems very probable, and the influence of Africa upon a doctrine which was fundamentally of Greek-Asiatic origin is as obvious.

We may briefly glance at the doctrine of pores and particles, held by Alcmaeon and Empedocles, in its relation to the atomism of Leucippus and Democritus. It seems chiefly an application of the atomic theory to animal physiology. The men whose names are thus associated are, approximately, contemporaries, though the elders, Alcmaeon and Leucippus, have such a vague chronology we are not able clearly to associate Pythagoras with their ideas. He is credited with wide travels and long visits to Egypt and Babylon but these rumors are still more vague than the chronology of his life span. At any rate the surmise is warranted that he was an interpreter to the island and European mainland Greeks, much influenced by the already domesticated Orphic mysticism of oriental thought. We can only surmise that the rise of the ancient atomic theory, like that of the modern, was due to the necessity in cosmical analysis for the minute divisibility of matter. It may be of interest to note that Diogenes Laertius, Diodorus Siculus, Strabo, and Aristotle before them, gave particulars of the life of Democritus,¹⁸ all the more valuable because they do not agree in some details. He also, though a native of Abdera in Thrace, is credited with extensive travels in Asia, and his father is said to have entertained Xerxes on his march with his army of invasion. Cicero¹⁹ refers to the stories of

the journeys of Pythagoras, Democritus and Plato and cites them as evidence of the curiosity good men felt and the exertions they made to gather knowledge. The indications of the frequent intercommunication of men of learning, from the community of views held at given periods among various nationalities around the Mediterranean, can not be ignored; the evidence of the localization of certain methods of thought, on the other hand, and the specific derivation of certain ideas by the Greeks from the Asiatics can not be denied.

One who has grown familiar with the museum specimens of the sculpture, or who has studied the illustrations on the walls of Nineveh and the temples of the Nile, or even one who has only a more or less vivid recollection of the reproductions of these in books will be struck by certain details concerning the remnants of the evolutionary doctrine of Empedocles. Some of this art, especially the Egyptian, is of a very high order measured by our own standards. Accustomed, as we are, to the winged celestial choir of our own religious art, familiar as we are with the copies of the scarcely less monstrous centaurs of the Greeks and the pinions of victory we really have no right to the feeling of revolt that moves us when we first see the winged bulls, the hawk-headed men, and the other theriomorphic creations pictured in Mesopotamia and Luxor by the artists of Tiglathpileser and Rameses II.

These may be seen on turning the pages of the first illustrated work on Egyptian or Mesopotamian archaeology which comes to hand. We can scarcely doubt that this tendency of oriental thought had its influence upon Empedocles and led him to that fantastic scheme of evolution, to which I have alluded in a former article,¹ whereby disjointed members were attracted to or repelled from one another by Love and Strife, until forms fit for survival were attained. It was a scheme of evolution

which started at a more advanced stage than our own theory of cellular synthesis, but the general outlines of the thought are the same. The drying up of the mud, the change from the sea to the dry land along some of the low lying coasts of the eastern Mediterranean, especially, too, those at the head of the Persian Gulf, has been extreme, and easily attracts the attention of modern observers. We find it, therefore, quite natural that Anaximander drew conclusions that ocean life, left on the bottom by the retreating sea, occasionally was changed into land forms. This seems to have been the thought of Empedocles, also, as it evidently furnished the basis of the idea of Thales that the land is born from the sea, that water is changed into earth in the mutation of the elements as conceived by others. Considerations of this kind, I think, are helpful to us in realizing that not from primitive man alone, but from his own environment, from his contact with contemporary thought, Empedocles had an opportunity to absorb his ideas of the cosmos. For primitive man too had his evolutionary thoughts. We read from Frazer²⁰ that some of the Samoans believed that men were evolved from grubs, themselves born from the rotting roots of trees.

I should go beyond the intent of this paper if I were to dwell further upon early Greek philosophy. Marvellous as was its development and momentous as was its influence upon evolution of modern medical science, it did not spring spontaneously out of the mud, as did the crawling creatures studied by Anaximander, nor was there an absence of transitional periods between primitive magic and the medicine of Hippocrates. These transitional periods, it is true, are far from clear to us, but we see them occupied by the mental activities of ancient

Oriental and the nature philosophers. One of the interpreters of their ideas, if not the chief link between prehistoric thought and Hippocrates, was Empedocles.

¹ Wright, Jonathan. *ANN. MED. HIST.*, ii, No. 2, 126.

² *Am. Med.*, March, 1920.

³ *N. York M. J.*, Sept. 20, 1919.

⁴ *The Magic Art and Evolution of Kings*. London and New York, 1913.

⁵ *Scient. Monib.*, August, 1920.

⁶ Rapson, E. T. *Ancient India from the Earliest Times to the First Century*, A. D. Cambridge, 1914.

⁷ Browne, Edward G. *A Literary History of Persia*. London, 1902.

⁸ Jackson, A. V. Williams. *On the date of Zoroaster*. *J. Am. Orient. Soc.*, 1896, xvii, 1.

Zoroaster, the Prophet of Ancient Iran. New York, 1899.

⁹ *Zend Avesta*, part 1. Tr. by James Darmsteter. Oxford, 1880, lxxxviii, 10.

¹⁰ Hewitt J. F. Notes on the early history of Northern India. *J. Roy. Asiatic Soc.*, Great Britain and Ireland, 1888, xx; 1889, xxi; 1908, xxii.

¹¹ The Hymns of the Rig Veda. Tr. by T. H. Griffith. 1889-92, 4 vols., Book 1, Hymn xxiii.

¹² Idem." Book X, Hymn cxxxvii.

¹³ Roscher, W. R. *Abhandlungen der philologisch-historischen Klasse der königlichen Sächsischen Gesellschaft der Wissenschaften*. 1903, 1904, 1913.

¹⁴ Ebers, Georg.: *Papyrus Ebers, das hermetische Buch über die Arzneimittel der alten Aegypter in hieratischer Schrift* Herausgegeben. Leipzig, 1875.

¹⁵ Plutarch. *Symposiacs—Isis and Osiris*. Tr. by Goodwin. Boston, 1875, 5 vols., iv, 65.

¹⁶ Lüring, H. L. *Die über die Kenntnisse der alten Aegypter berichtenden Papyri*. Leipzig, 1888.

¹⁷ Von Oefele, F. *Aegyptische Pneumalehre im Auslande*. (Reprint.)

¹⁸ Smith. "Dictionary of Greek and Roman Biography and Mythology. 3 vols., 1873.

¹⁹ Cicero. "De finibus bonorum et malorum." Book V, Chap. 19.

²⁰ Frazer, Sir James George. "Folk Lore in the Old Testament." 3 vols., London & New York, 1918. See also (1) Windeband, W. *History of Ancient Philosophy*; (2) Burnett, John. *Early Greek Philosophy*. 1908, 2 ed.; (3) Gomperz, Theodor. *Greek Thinkers*. 1908-12, 4 vols.

AN INTERESTING FRIENDSHIP - THOMAS HODGKIN, M.D. AND SIR MOSES MONTEFIORE, BART.

By JACOB ROSENBLUM, MD., PH.D.

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THE subjects of this paper were men of widely different training and education but with marked sameness of spirit and nobility of character.

Sir Moses Haim Montefiore, the great Jewish philanthropist, was born on October 24, 1784. His paternal ancestors were Jewish merchants who settled at Ancona and Leghorn in the seventeenth century, while his grandfather came to London in 1758. Moses Montefiore entered the Stock Exchange as one of the twelve Jewish brokers licensed by the city of London. Although belonging to the Sephardic or Spanish congregation of Jews he married, in 1812, Judith, a daughter of Levi Barent Cohen, of the German Jews, another of whose daughters was married to Nathan Mayer Rothschild, the head of the great banking firm, and Moses Montefiore's brother married a sister of Nathan Rothschild. In 1824 Montefiore having amassed a fortune retired from the Stock Exchange. He devoted all his time to helping the lot of his co-religionists.

He made his first pilgrimage to Palestine in 1827 and this resulted in a friendship with Mehemet Ali which led to much practical good. On his return he helped the British Jews to obtain full political and civic rights. In 1837 he became the City of London's second Jewish sheriff and was knighted. In all he made seven pilgrimages to the Palestine, the last being made in 1875.

The last years of his life were passed on his estate in Kent. He died on the 28th of July, 1885, having lived to be over one hundred. He was a strictly Orthodox Jew, observant of both the spirit and the letter of the scriptures. In his grounds he had a

Synagogue built where services are still held twice a day, a college where ten rabbis live and teach the Jewish law and a mausoleum which contains the remains of himself and Lady Montefiore, who died in 1862.

Thomas Hodgkin¹ was born at Tottenham in 1798, took his degree at Edinburgh in 1823, and became a member of the College of Physicians in London in 1825. He belonged to the society of Friends, as may be easily gathered from his style of writings. He was possessed of very great literary attainments, being especially complimented on the pure latinity of his thesis on "Absorption" on the occasion of his taking his degree at Edinburgh. He passed considerable time in France and Italy, where he perfected himself in the Continental languages, and acquired a strong taste for pathological pursuits. This was due, no doubt, to the scientific tendency of his mind, which prompted him to undertake the study of those branches of medicine which possessed a more positive character, as being more congenial to his remarkably simple and truthful nature. On his return to England he engaged himself with others in the foundation of an independent school at Guy's Hospital by becoming curator of the museum and demonstrator of morbid anatomy. The work he did in forming the museum was enormous, both in preparing specimens and framing a catalogue; the result of his labour is seen also in the two

¹ For details regarding Hodgkin see—Wilks: "A short account of the life and works of Thomas Hodgkin, M.D.," *Guy's Hosp. Gaz.* 1909, xxiii, 528; 1910, xxiv, 13; Wilks: An account of some unpublished papers of the late Dr. Hodgkin, *Guy's Hosp. Rept.*, 1878, xxiii, 55; Wilks and Bettany: History of Guy's Hosp.; 1892, 380.

volumes of "Lectures on the Morbid Anatomy of the Serous and Mucous Membranes."

Hodgkin was the first to describe the condition characterized by a simultaneous enlargement of the spleen and lymphatic glands,² which was outlined by Malpighi in 1665 and which Wilks in 1865 called Hodgkin's disease. He also gave a description of insufficiency of the aortic valves,³ antedating Corrigan by three years. His "Essay on Medical Education" published in 1823, is still a classic.

After having occupied the lecture chair for about ten years, to the special advantage of the school and to the advancement of pathology throughout the world, he retired from the post after his unsuccessful candidature for the assistant physicianship.

Guy's Hospital now lost one of its greatest ornaments, and the profession in England, one who was destined to shed a lustre on its ranks. After his severance from Guy's he passed to St. Thomas's where his stay was but short; he continued to practise medicine, but his sources of information on matters of pathology being eliminated, he turned his mind to more general subjects. He wrote a book "On The Preservation of Health." He interested himself in provident dispensaries and in some medico-legal questions. Latterly he almost entirely devoted himself to philanthropic pursuits, and was mainly instrumental in founding the Ethnological Society, in connection with which he devoted himself to the study of philology. Subsequently he traveled in the East with Sir Moses Montefiore for the purpose of rendering aid to the Jews. On their last journey he was seized with dysentery and died at Jaffa, on the 5th of April, 1886, aged sixty-eight.

The following letter¹ from Sir S. Wilks

¹ *Med.-Chir. Trans.*, London, 1832, xvii, 68-114.

² *London Med. Gaz.*, 1828-29, iii, 433-443.

³ Wilks; "Hodgkin and Sir Moses Montefiore," *Guy's Hosp. Gaz.*, 1910, xxiv, 13.

presents details of interest regarding Montefiore and Hodgkin.

Dear Sir,—On reading the story of Dr. Hodgkin in your last number, where I say that his death occurred during the last visit of himself and Sir Moses Montefiore to the Holy Land, I ought to have added the word "together," because Sir Moses, when a very old man, several years afterwards made another journey to Palestine, hearing that troubles had occurred at an institution at Jerusalem supported by himself and Lord Rothschild. On this occasion he had an easier journey than formerly, going by the route to India by Paris, Turin, and Brindisi, and then by steamer to Alexandria and to Port Said. He then proceeded on an Austrian vessel going to Jaffa and Beirut. On arrival at Jaffa in the evening a large number of friends were waiting to greet him, one of whom had prepared a house for him to lodge in. On the following morning, he says in his narrative, his friend having lent him a carriage, "it conveyed me first to visit the tomb of my much-lamented friend, Dr. Hodgkin." Having to wait four days at Jaffa to prepare for his visit, not liking to encamp three or four nights on the road to Jerusalem, he says, "I went to see again the tomb of my much-lamented friend, Dr. Hodgkin, and arranged for the better preservation of the ground, a suitable railing should be made round the monument. It was a melancholy occasion, and made me remember all those virtues by which the departed was so pre-eminently distinguished during his life."

Sir Moses, knowing I was much interested in Dr. Hodgkin as the first curator of our museum, and therefore well acquainted with his travelling in the East with Sir Moses, sent me a copy of his book containing an account of his last visit to Palestine, and it is from this book that I make the extracts which I have just quoted. He sent it to me with his name written on the title page, and a faded photograph, fixed on the outside cover, of himself and his wife. I am now sending you this book, with the request that you will hand it to the librarian to be placed on some shelf of the library, where it will remain as a memento to Dr. Hodgkin. It will remind the reader, also, of the course of his life after he bade farewell to Guy's, when he lost the promotion

which he so much coveted. During the time he was curator he was clean-shaven, and therefore his portrait which you gave the *Gazette* was the most opposite; but he afterwards wore a beard, which, I think, very much improved him. A photograph of him at this time I also send you to be placed with some other mementos of the Guy's staff and professors.

I cannot say what first brought about the close association of our hospital with the Montefiore family, but in my early student days a young man, named Nathaniel Montefiore, came as a volunteer to study medical subjects, and

name "Evelina." I believe the first members of the staff which were appointed were Guy's men. Some years afterwards Montefiore had a very promising son; he, unfortunately, died young, which was a great distress to his father, and no doubt, it was, in fact, the reason why he succumbed to some abdominal disease. I was called to see him, but being away from home Dr. Fagge went as my substitute, and was present at his death.

I am,
SAMUEL WILKS.



THOMAS HODGKIN, M.D.



SIR MOSES MONTEFIORE and the Portrait of LADY JUDITH MONTEFIORE.

more especially, physiology, so that some years afterwards he used to come down to Dr. Pavy's laboratory and see his experiments in connection with diabetes. He rented a room in the small house of the porter at the lodge, named Archer. It was situated, if I remember rightly, in St. Thomas's Street, at the back of the corner house, near the old burial ground behind the chapel. Montefiore was evidently very popular with the students, who used to call him "Nat."

I believe his sister married a Goldsmid, but of this I am not sure; she having died early, a child's hospital was built to her memory in the Southwark Bridge Road, and called after her

(The book and photograph which Sir Samuel Wilks has kindly sent, referring to the above letter, may be seen in the library by anyone interested in the subject. With reference to Hodgkin's growing a beard during one of his journeys in the East, Sir Samuel Wilks adds:—"The *Guy's Gazette* was, I believe, at that time in its infancy, but in all probability the editor had a collaborator who wrote in the 'Lighter Vein;' no doubt, however, there was always amongst

the students the 'funny man.' This gentleman was guilty of giving birth to the following *jeu d'esprit*: 'Hodgkin went out with Moses and returned with Aaron (hair on).'—*Ed*."

The photograph of Sir Moses Montefiore and his wife, illustrating this paper is taken from the volume mentioned by Sir Samuel Wilks, a copy of which is in my possession.

In the following book I found considerable material dealing with the friendship of Hodgkin and Montefiore. It is entitled "Diaries of Sir Moses and Lady Montefiore Comprising Their Life and Work as Recorded in Their Diaries from 1812 to 1883." Edited by Dr. L. Loewe, assisted by his son. Chicago, 1890, in two volumes.

The following quotations are taken from this work—

On February 25th Sir Moses and Lady Montefiore, accompanied by Dr. Hodgkin and Mr. Gershon Kursheedt, left England for the Holy Land.⁵

Sir Moses was highly pleased, and would have gone to town on purpose to thank his Excellency for the good tidings, but the state of Lady Montefiore's health caused him much anxiety, and prevented him from doing so.

She passed night after night in a state of restlessness and pain, and her medical advisors in Ramsgate and London strongly urged that she should pass the winter in a warmer climate.

Accordingly, September 20th, Sir Moses wrote to Dr. Hodgkin, inviting him to accompany them to some place on the Mediterranean recommended by him and Sir Charles Locock. Dr. Hodgkin accepted his invitation. He felt it a duty he says, as well as a satisfaction, to comply with the wishes of so kind a friend.⁶

September 8th.—In accordance with the decision of the doctors, after several consultations, Lady Montefiore was to pass the winter at Nice, and she was strongly advised not to postpone her departure after the 19th of October.

Dr. Hodgkin still feared that she was too weak to undertake the journey, but he would meet Sir Charles Locock, when they would come to a final decision.⁷

September 10th.—Sir Charles Locock met Dr. Hodgkin at Park Lane in conference, and passed more than half-an-hour with Lady Montefiore and Sir Moses. The result was, that Sir Charles found Lady Montefiore better than when he last saw her, and more able to bear the fatigue of their proposed journey and felt no hesitation in giving his opinion in favor of their going to Mentone. Dr. Hodgkin was content not to oppose Sir Charles Locock's opinion, but did so, Sir Moses says, evidently under restraint.⁸

September 19th.—Lady Montefiore had an undisturbed night, and Sir Moses left Park Lane at half-past nine, attended various meetings in the city, and about half-past one he returned with the intention of going with Lady Montefiore to see the National Exhibition. But unfortunately he found her very unwell, and still in bed. The carriage had been ordered to convey them to see the exhibition, but Sir Moses went instead to Dr. Hodgkin, requesting him to call at once.

Dr. Hodgkin found Lady Montefiore seriously ill, and the next day told Sir Moses he was very uneasy, and would like to have a consultation with Sir Charles Locock, who, unfortunately, had gone to Brighton and could not come. The next day her state was more favourable but after a restless night became so serious, that another doctor was called in, who, to Sir Moses' great grief, could give him no better account. Most of the members of the family were there. Mr. Sebag (now Mr. Sebag Montefiore) remained all night, and together with Sir Moses read her the prayers for the sick.⁹

Dr. Hamilton Rowe came and had a long consultation with Dr. Hodgkin; they found Lady Montefiore in the same state as last night, and ordered some strong remedies. Dr. Rowe told Sir Moses that he was not entirely without hopes.¹⁰

September 24th. Dr. Rowe and Dr. Hodgkin

⁷ 11, 136. 1862.

⁸ 11, 136. 1862.

⁹ 11, 137. 1862.

¹⁰ 11, 137. 1862.

⁵ 11, 63. 1857.

⁶ 11, 115. 1860.

declared that a very favourable change had taken place, but still the utmost quietness must be observed. They cautioned him against being too sanguine, as Lady Montefiore was very weak and no longer young.¹¹

On the day when the doctors still felt a spark of hope for her recovery, Lady Montefiore remained silent, apparently preparing her spirit for flight. Many a sigh of deep sorrow might have been heard around her couch, many eyes were dimmed by tears of grief, but no sigh, no tear, was to be noticed on the countenance of the dying lady; with a heavenly smile she greeted those who came to see her, endeavouring at the same time to incline her head towards them. Relatives and friends were anxious to remain with her, but she motioned to them to leave her and to go up to prayers, as it was the eve of the Hebrew New Year, one of the most solemn festivals. The Sabbath lamp was lighted, shedding its subdued light around, and in the adjoining oratory the hymns for the festival were softly and solemnly chanted to the ancient melodies.

At the conclusion of the services Sir Moses came back, laid his hands affectionately on the head of Lady Montefiore, and invoked Heaven's blessing upon her, which she reciprocated by placing her hand upon his head, in token of blessing. Sir Moses then descended to the dining-room, where the relatives were assembled, to pronounce the grace before meals, but he had scarcely pronounced the blessing when he was called up by Dr. Hodgkin, who had been watching by the bed of the invalid and who informed him that the end was very near.

All present immediately followed Sir Moses, the solemn prayers for the dying were recited, and the pure spirit of Judith, the noble, the good, and the truly pious, took flight Heavenwards.¹²

November 16th.—We find Sir Moses at Dover, accompanied by Mr. Haim Guedalla, Mr. Sampson Samuel, the Secretary and Solicitor of the Board of Deputies, and Dr. Hodgkin, proceeding to the Lord Warden Hotel, with the intention of remaining over night, in order to leave the next morning for Calais. Many friends

being anxious to express their good wishes, they came in the evening to see him, and remained till a late hour. Even then he did not retire, but continued writing and making arrangements, until he was entreated by his physician to take some rest.¹³

February 26th.—Sir Moses left Ramsgate for Dover, where he met Mr. and Mrs. Sebag (now Sebag Montefiore), Dr. Hodgkin, and the writer, who were to be his companions on the journey.

It was Sir Moses' intention to proceed to Jerusalem after only one day's sojourn at Jaffa, but his intention was frustrated by the illness of Dr. Hodgkin.

"Being most reluctant to leave him," Sir Moses writes, "I remained with him up to the latest moment, until it became absolutely necessary to depart for Jerusalem, in order to arrive there in time for the Passover holidays."¹⁴

"While at Jaffa, I had frequently expressed my strong desire either to remain with my lamented friend, to take him to Jerusalem, or to relinquish my journey thither, and return with him to Europe; but all my friends assured me that it would be most imprudent for Dr. Hodgkin to travel at the time, and that the best and only advisable course was to let him remain in the house of Mr. Kyat, the British Consular Agent, under the most kind and watchful attendance of that gentlemen and his family, and with whom he had been staying since our arrival in Jaffa. Advice so earnestly urged, I could not but follow. Accordingly, on Sunday the 25th of March, having previously secured the professional services of Dr. Sozzi, the physician of the Lazaretto, and left my own English servant, and likewise engaged another, to be constantly in attendance on my esteemed friend, I reluctantly quitted Jaffa, for Jerusalem, after a farewell visit to my friend, in the full hope of being soon rejoined by him, and having for this purpose left for his convenience the Takhteerawan,¹⁵ which the Governor of Jerusalem had kindly sent to Jaffa for my own use.

"This hope, however, was not destined to be realized. Unfortunately the state of health of

¹¹ 11, 138. 1862.

¹² 11, 138. 1862.

¹³ 11, 146. 1862.

¹⁴ 11, 172. 1866.

¹⁵ A Sedan chair.

my lamented friend had not been, previously to his departure from England, as satisfactory as his friends could have wished; and, indeed, he left home to accompany me on my journey, in the hope and belief that the voyage and change of air would prove beneficial to him. I have at least much consolation in reflecting that all that could be done was made available for the preservation of his valuable life.

"It has pleased the Almighty to take him from us, and that he should not again behold his loving consort and beloved relatives; he breathed his last in a land endeared to him by hallowed reminiscences. To one so guileless, so pious, so amiable in private life, so respected in his public career, and so desirous to assist with all his heart in the amelioration of the condition of the human race, death could not have had any terror.

"I trust I may be pardoned for this heartfelt but inadequate tribute to the memory of my late friend. His long and intimate associations with me, and my dearly beloved wife, his companionship in our travels, and the vivid recollections of his many virtues, make me anxious to blend his name, and the record of his virtues, with the narrative of these events.¹⁶

"But soon I was to sustain a heavy affliction. After having left Jaffa, I constantly received telegrams about the state of Dr. Hodgkin's health; and when I was informed that the symptoms had become more alarming, I begged my friend, Captain Henry Moore to proceed to Jaffa in the company of the physician of Jerusalem, Dr. Chaplin. They at once complied with my request, and remained at Jaffa with my lamented friend until the period of his decease, the melancholy tidings of which I received during the night of the 5th of April. Having already referred to this sad event, I shall not again dwell thereon, except to say that it overwhelmed me with sorrow and cast a gloom over me which I vainly sought to dispel.¹⁷

"On Friday the 13th of April, being desirous of leaving some pecuniary relief from myself for each of the synagogues, colleges, schools, and various charitable institutions, with their re-

spective representatives themselves, I had previously made arrangements to see them on that day, but a restless night and a constitution enfeebled, partly by incessant work, and partly by the grief I acutely felt at the loss of my late friend Dr. Hodgkin, compelled me to alter my plan, and instead of personal interviews I had to satisfy myself with addressing these gentlemen by letters, forty-two of which were dispatched to the authorities and their accredited secretaries, accompanied by my humble offerings to the benefit of all the charitable institutions in Jerusalem."¹⁸

May 9th.—Sir Moses arrived at Ramsgate. Next day he proceeded to Brighton, thence to Lewes to pay a visit of condolence to Dr. Hodgkin's brother.¹⁹

July 24th.—A granite pillar was bought by him for the tomb of his lamented friend, Dr. Hodgkin, and sent to Jaffa, at his expense.²⁰

Dr. Hodgkin was buried amidst the scenes of his last labours, and an obelisk made of syenitic granite, on which is the following inscription:

Here rests the body of Thomas Hodgkin, M.D., of Bedford Square, London, a man distinguished alike for scientific attainments, medical skill, and self-sacrificing *philanthropy*. He died at Jaffa, the 4th of April, 1886, in the 68th year of his age, in the faith and hope of the Gospel.

Mumani nihil a se alienum putabat.

The epitaph is inscribed by his deeply sorrowing widow and brother, to record their irreparable loss.

On the obverse is the following:

This tomb is erected by Sir Moses Montefiore, Bart., in commemoration of a friendship of more than forty years and of many journeys taken together in Europe, Asia, and Africa.

In closing I wish to thank the Surgeon-General's Library for the picture of Thomas Hodgkin and Lionel Montefiore of England for the right to reproduce the picture of Sir Moses and his wife.

¹⁸ II, 187. 1866.

¹⁹ II, 189. 1866.

²⁰ II, 190. 1866.

¹⁶ II, 173. 1866.

¹⁷ II, 180. 1866.

DR. ERASMUS DARWIN, THE AUTHOR OF "ZOOONOMIA"

By WILLIAM ABBATT

TARRYTOWN, N. Y.

IT would probably be safe to assert that none of our subscribers have read the life of Dr. Erasmus Darwin, grandfather of the famous author of the Darwinian theory and great-grandfather of Francis Galton, author of "Hereditary Genius."

Yet it has twice been written¹ and each book is well worth reading, as a memorial of a man of an unusual sort, one who would perhaps have achieved greater reputation as an inventor than he did as a physician, for his bent toward mechanics was very strong, as we shall have occasion to show and, comment upon later.

He was born near Derby, England, in 1731 and died there in 1802. In 1755 he took his degree in medicine at Cambridge and settled at Lichfield. Here he was to remain for twenty-five years and become very successful in the profession. Because of his professional reputation,

George III asked him to move to London and become court physician. But the charms of Lichfield prevailed over those of London, and he remained there until 1781, when he moved to Derby.

In the period covered by his life in Lich-

field the town was quite a literary center, and to one of his tastes must have been very attractive. Though never a large place the society which centered around the Cathedral and its clergy was decidedly literary, and included a number of persons holding, if not a commanding, certainly a respectable rank in the republic of letters.

Rev. Thomas Seward was a canon of the Cathedral, and his daughter Anna—who was destined to write a "memoir" of Dr. Darwin—was one of the circle. Others were William Hauley, author of "The Triumphs of Temper," a now-forgotten poem, but so successful at the time as to be illustrated by Flaxman the sculptor, and reach its twelfth edition; Richard Lovell Edgeworth, who, in spite of his own very respectable scientific attainments, is better known as the father of Maria Edgeworth; the eccentric



ERASMUS DARWIN, M.D.

Thomas Day, author of "Sandford and Merton," at that time one of the "six best sellers" and for a time a strong rival of "Robinson Crusoe"—and a number of other persons of minor attainments in letters. "Thus established," says Winthrop Sargent, "the literary magnates of a provincial city sufficiently remote from London to be beyond many of the terrors of its

¹ Krause, Ernest: Berlin, 1879. English translation, New York, 1880. Dawson: Erasmus Darwin—Poet, Philosopher and Physician, London, 1881.

superior authority, the Cathedral set lived and wrote, and esteemed each other for great authors and were, we may suppose, as happy as this belief could make them."

This, however, is too sweeping—the authors named would constitute an attractive circle anywhere; and had they been mere triflers, one of Darwin's attainments certainly would not have been attracted to it. His reference to Miss Seward (who has been known in all the encyclopedias as the "Swan of Lichfield") shows he had a good opinion of her social influence.

One celebrity, however, a native of Lichfield, does not seem to have been drawn to Dr. Darwin—the great Dr. Samuel Johnson. It is of record that they seldom met in Lichfield, and when they did, were not congenial. Probably a case of two lions, each thinking the other superfluous on the (Lichfield) shore.

In 1769–70 Darwin must have met in this pleasant circle a young fellow of eighteen, handsome, amiable and socially accomplished, who was particularly intimate with Miss Seward and her adopted sister, Honora Sneyd—Edgeworth's second wife. The son of a London merchant and a clerk in his "dingy compting-house," as he says in one of his letters to Miss Seward, he occasionally visited Lichfield, until Miss Sneyd's marriage in 1773, after which he remained in London. We will look ahead seven years to 1780. The handsome young fellow is a major of twenty-nine in the British Army serving in the United States, and destined to achieve celebrity by his death in October, 1780, at the little hamlet of Tappan, in the present Rockland County, New York. His name appears on a monument in Westminster Abbey—it is *John André*.

Dr. Darwin was not interested in literature alone but was greatly drawn toward chemistry and mechanics, being the author of several useful inventions, including a lamp, an improved sort of candlestick, a mill for grinding flint for pottery, and an improve-

ment in canal locks. He was intimate with James Watt, the inventor of the steam engine, and with his partner Thomas Boulton; with Josiah Wedgwood, the father of English pottery, Richard Lovell Edgeworth, with whom he maintained systematic correspondence for thirty-six years,² with James Keir, the chemist (1735–1820), whom Watt described as "a mighty chemist and a very agreeable man," with James Brindley (1716–1772) the great civil engineer who made the Bridgewater Canal, and with Thomas Bentley (1731–81), the potter, partner of Josiah Wedgwood. With Thomas Day he was very intimate. Day said he was one of three friends from whom he had met with constant kindness.

In writing to his son Robert, Darwin said, "I much lament the death of Mr. Day. He was dear to me by many names; as friend, philosopher, scholar and honest man." Nor was Darwin's circle confined to his own countrymen; for, meeting J. J. Rousseau, while he was living in England, he maintained a regular correspondence with him after his return to France, as he also did with Benjamin Franklin.

Benevolence was a leading feature in his character, and his earnest antislavery advocacy was an outgrowth of it. It is hard to realize now that England did not abolish slavery until 1807, when our good doctor had been dead two years.

Yet he never let his benevolence outrun common sense; as witness a letter to Robert (in 1790) who had solicited his influence for a young friend whom he wished to see start well as an apothecary at Lichfield or Derby. Some of his phrases are not unlike Franklin's:

I cannot give any letters of recommendation to Lichfield, as I am and have been, from their

² In one of his letters to Edgeworth is a phrase of such felicitous character that it ought to be found in the books of quotations beside the familiar one from the "Botanic Garden." He says: "A fool is a man who never tried an experiment in his life."

infancy, acquainted with all the apothecaries there; and as such letters must be directed to some of their patients, they would both feel and resent it. (When Mr. Mellor went there from Derby to settle, I took no part about him.) I should advise your friend to get acquainted with the people of all ranks. At first, a parcel of red and blue glasses at the windows might gain part of the retail business on market-days, and thus get acquaintance with that class of people. I remember Mr. Green, of Lichfield, who is now very old, once told me his retail business, by means of his show-shop and many colored windows, produced him £100 a year.

Secondly, I remember a very foolish, garrulous apothecary at Carmock, who had a great business, without any knowledge or even art, except that he persuaded people he kept good drugs; and this he accomplished by only one stratagem; and that was, by *boring* every person who was so unfortunate as to step into his shop, with the goodness of his drugs. "Here's a fine piece of assafœtida—smell of this valerian, taste this album græcum, Dr. Fungus says he never saw such a fine piece in his life, etc."

Thirdly, dining every market-day at a farmers' ordinary would bring him some acquaintance, and I don't think a little impediment in his speech would at all injure him, but rather the contrary, by attracting notice.³

Fourthly, card assemblies—I think at Lichfield, surgeons are not admitted as they are here—but they are, to dancing assemblies; these, therefore, he should attend.

Thus have I emptied my quiver of the *arts* of the Pharmacopeia. Dr. K., I think, supported his business by perpetual boasting like a charlatan: this does for a blackguard character, but ill suits a more polished or modest man. If the young man has any friends at Shrewsbury who could give him letters of introduction, this would forward his getting

³ Here Dr. Darwin spoke by the card, for he himself stammered greatly. This defect, to which he refers, however, did not spoil his powers of conversation, for a lady of rank, accustomed to the most brilliant society in London, told Robert that his father was one of the most agreeable men she had ever met.

acquainted. For all the above purposes some money must at first be necessary, as he should appear well; which money cannot be better laid out, as it will pay the greatest of all interest, by settling him well for life. If he is not in such narrow circumstances but that he can appear well-dressed, and has the knowledge and sense you believe him to have, I dare say he will succeed anywhere. A letter of introduction from you to Miss Seward, mentioning his education, may be of service to him.

Yours most aff'y,
E. D.

Darwin's poetical turn was not confined to himself—his brother Robert was also a poet, and wrote "*Botanica*," which contained much on biology—"then almost an unknown science."

Erasmus Darwin's most important scientific work is "*Zoonomia*, or the Laws of Organic Life," containing a system of pathology and a treatise on generation which, in Charles Darwin's words, "anticipated the views and erroneous grounds of opinion of Lamarck." It is full of scientific enthusiasm and interest in nature. It was well received on its appearance, was translated into German, French and Italian, and such modern authorities as Maudsley and Lauder Brunton have cited passages from it showing that Darwin, nearly a century before, had anticipated some modern "discoveries."

In his "*Temple of Nature*"⁴ is an instance of his prophetic views with respect to "microscopic animals" (bacteria), a matter in which Jenner also was much interested.

Whatever might be thought of his "*Botanic Garden*," if it were a modern production, it is certain that it took high rank in its day. The publisher paid him £1000 for it, which, as money was certainly worth three times its present value in purchasing power, would equal \$11,550 to-day: no slight price for a work even of the present time.

It passed through five editions, and Horace Walpole said of it: "It is most

⁴ Published in 1803 after Darwin's death.

beautifully and enchantingly imagined, and the twelve verses that describe the creation of the universe out of chaos are in my opinion the most sublime passages in any author or in any of the languages with which I am acquainted."

Cowper also wrote of it—

No envy mingles with our praise
Tho' could our hearts repine
At any poet's happier verse,
They would, they must, at thine.

And Edgeworth said: "In future times some critic will arise who will rediscover the Botanic Garden, and build his fame upon the discovery. It will shine out again, the admiration of posterity."

Yet today all that preserves its name is the prophetic verse to which the events of 1914-18 lend such interest:

Soon shall thine arm, unconquer'd steam, afar
Drag the slow barge, or drive the rapid car;
Or on wide-waving wings expanded bear
The flying chariot through the fields of air.

Two of Dr. Darwin's sons, Charles and Robert, became physicians. The first died when but twenty years old, from a wound received while dissecting; Robert (1766-1840) became a successful practitioner, but did not manifest any poetic or scientific bent. Erasmus, the second son, became a lawyer. He committed suicide. A son (Francis) by his second marriage, also became a physician, and died in 1859.

Robert Darwin became the father of Charles, the great naturalist, and Robert Darwin's eldest daughter by his second marriage, became the mother of Francis Galton, the author of "Hereditary Genius."

Of Charles Darwin's five sons four attained prominence: George as an astronomer, Francis as a botanist, Leonard in the Royal Engineers, and Horace as a civil engineer—surely a record of which the old physician-poet of Lichfield is proud, if it is known to him.



THE JOHN KEARSLEYS*

By WILLIAM S. MIDDLETON

MADISON, WIS.

AS the storm center of the American revolutionary movement, Philadelphia presented certain unusual political aspects. Her institutions were fundamentally conciliatory by reason of their Quaker origin. The English Episcopalian element of her population was in a measure loyal to the Crown, as was manifest by the words and deeds of some of the most prominent citizens of Philadelphia. Yet a majority of her people supported the cause of liberty in the Colonies and outweighed the pacifism of the Quakers and Toryism of the adherents of the Motherland.

In "Hugh Wynne, Free Quaker," S. Weir Mitchell has clearly depicted the spirit of those turbulent times in Philadelphia. Herein he recounts an interesting conversation between the vivacious Darthea Peniston of royalistic bent and the very human Quaker, Hugh Wynne, who like the Biblical Peter resented personal insult with physical force:

Since in September, our friend, Dr. John Kearsley, was mobbed and maltreated, my aunt declares you unfit to live among. I must say I thought it brutal, sir. When men of sense and breeding like Mr. Penn, Mr. Chew, and Dr. Kearsley, cannot live unmolested it is time, my aunt thinks, to run.

"No one annoys Mr. Penn or Mr. Chew," said I. "To my mind, they are neutrals and worse than open foes; but thy doctor is a mad Tory, and a malignant talker. I saw the matter and I assure thee it was overstated. He lost his temper; 'tis a brave gentleman, and I would he were with us. But now that both sides are sure at last that they really are at war, these men who live among us and are ready to welcome

every redcoat must have their lesson. It must be Yes or No, in a war like this."

This half told narrative incites an inquiry into the identity of the mad Tory physician and the circumstances leading to the indignity to his person. Fortunately the coordinating links in this episode are authentic pages from the Revolutionary history of Philadelphia.

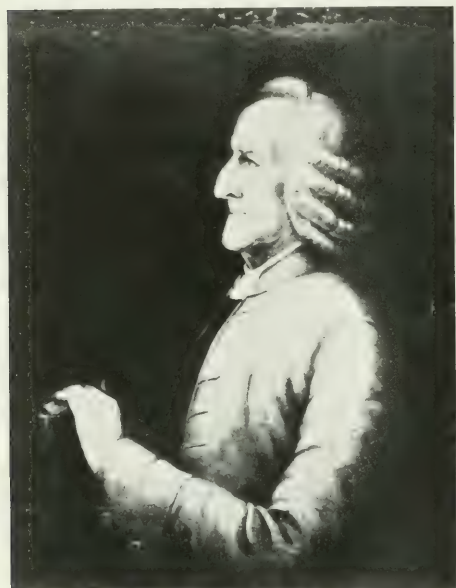
The Tory doctor, John Kearsley, Junior, was preceded in Philadelphia by an illustrious uncle of the same name. The career of John Kearsley, Senior, as a physician and public servant was most noteworthy. Derived from English Episcopalian stock, he was born in London in 1684. No record of his genealogy is extant; but his will, dated April 29, 1769, and probated in the courts of Philadelphia February 13, 1772, favors among others his nephews and nieces of Sedgfield, England. So it is assumed that he too, came from England. However, Jonathan Kearsley, reputed to have been related to John Kearsley, came to America from Scotland. It would seem probable that the former also originally came from England. Unfortunately, this question, as well as those pertaining to the relationship between Jonathan and the John Kearsleys must remain unsettled, since all evidence in this matter was in the office of the Clerk of the Supreme Court when the British fired the Capitol at Washington in 1813.

John Kearsley, Senior, received a liberal education and an excellent medical training in England. In 1711 at the age of twenty-six years, attracted doubtless by the religious freedom and early prosperity of the Quaker colony on the Delaware, he emigrated to Pennsylvania.

A most propitious field for the practice of medicine was afforded in the City of

*Read before the Medical History Seminar, University of Wisconsin.

Brotherly Love. An unusually able group of Welsh physicians had accompanied the Utopian expedition of William Penn to the New World. Such practitioners of physic as Edward Jones, Thomas Wynne, Thomas Lloyd and Griffith Owen lent dignity and preeminent position to Philadelphia medicine from its inception. Furthermore, in



DR. JOHN REDMAN, Philadelphia's most famous preceptor.

creed and practice the Friends had relegated law and the clergy to relatively inconspicuous positions in civic affairs. Physicians, therefore, by reason of their superior educational advantages came naturally to attain, as a profession, a singularly prominent station in the public life of the colony. Thus, Thomas Lloyd was its first deputy-governor and Thomas Wynne presided over the first Assembly, while Edward Jones and Griffith Owen, likewise, held positions of trust in the colonial government.

Nurtured by this auspicious atmosphere, the vigor and manifold talents of the young Kearsley carried him rapidly to the front

rank of his profession in Philadelphia, while his wide public interests early gained him prominence in the affairs of the colony. Dr. Kearsley's rise in the profession was in a degree fostered by the gradual retirement of the earlier Quaker physicians. He was in truth the natural successor to Dr. Griffith Owen, the most active practitioner of the Quaker group. Accompanying Governor Keith in 1717, came Doctor Thomas Graeme, a prominent English Episcopalian physician. He is described as an affable gentleman of fine education and excellent reputation. His coming marked essentially the passing of the Welsh Quaker regime in Philadelphia medicine.

John Kearsley, Senior, was a pioneer in medical education in this country. His professional ability attracted to his office as house students and apprentices a considerable and notable group of young Americans. Under his tutelage came Zachary, Cadwalader, William Shippen, Senior, the Bonds, Cadwalader Evans, Redman, Bard and John Kearsley, Junior. The designation of Kearsley's office as the "first medical college in America" is, however, an historic anachronism in view of the medical preceptorship of Lambert Wilson and Giles Firmin in Massachusetts almost a century before. Nevertheless the influence of Kearsley and his teaching on the succeeding generations of American medicine can scarcely be overestimated. From his office went the brothers Bond and Lloyd Zachary to found the famous old Pennsylvania Hospital. William Shippen, Senior, became a founder of the College of New Jersey (Princeton), and so instilled the seed of medical education into his son that he in turn became a moving spirit in the foundation of the first medical school in America. John Bard became a distinguished practitioner in New York and his son, Samuel, founded the first medical school in that city. Another student, John Redman, became a founder and the first president of

The College of Physicians of Philadelphia, and by his notable contribution to medical education outranks all of his illustrious fellow students. Under the preceptorship of John Redman sat John Morgan, Benjamin Rush, Caspar Wistar and John Redman Coxe—a notable legacy to posterity.

Dr. John Bard, one of Kearsley's apprentices, has drawn a vivid, if caustic, picture of the conditions under which these boys labored during their seven years of service. He relates that Dr. Kearsley had "a morose and churlish temper, which banished all cheerfulness and social converse from his pupils, and rendered him an unpleasant companion." S. Weir Mitchell adds that the apprentice "carried medicines to the sick, or prepared drugs for use by his master in his daily rounds; he made fires, kept the office clean, and did other less agreeable duties commonly devolving nowadays on servants." Among his onerous duties the apprentice functionated as "servant, coachman, messenger-boy, prescription clerk, nurse and assistant surgeon." Indeed, Bard avers that except for Mrs. Kearsley, toward whom he entertained the "warmest gratitude, affection, and respect," the life of an apprentice would have been unbearable. Human nature is frail and susceptibility natural. Bard married Miss Valleau, a niece of Mrs. Kearsley.

Although Dr. John Kearsley, Senior, was a practitioner of recognized talent and wide experience, but two contributions to medical literature are attributed to him. The first of these is found among a "Collection of Letters on Yellow Fever, 1794," manuscripts gathered by John Redman Coxe, who with characteristic precision noted that "the following remarks were taken from a loose paper found in the Book, from which the foregoing pages were copied, and are the production of Dr. Kearsley, Sr." Apparently Benjamin Franklin had referred a clinical note from Dr. Mitchell on the yellow fever of 1741 and 1742 in

Virginia to Dr. Kearsley for discussion. The substance and style of Dr. Kearsley's commentary warrant its reproduction verbatim.

The Yellow fever in Virginia seems well described by Dr. Mitchell, but it differs from that which appeared in Pennsylvania at the same period of time, in the following particulars:



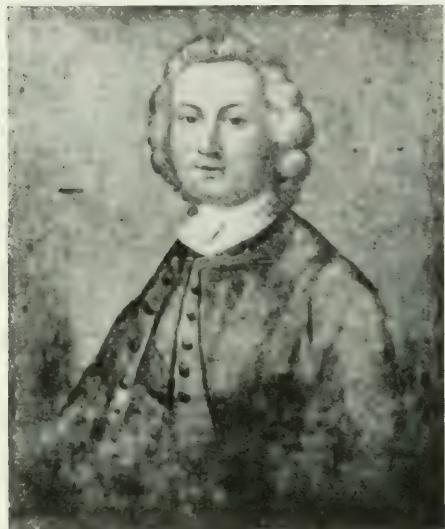
DR. THOMAS GRAEME, an affable gentleman of education.

1. Wandering pains like those attending a rheumatic fever, but much more severe, were generally much complained of from the first, by those who had this disease in Pennsylvania, —these are not mentioned by Dr. Mitchell.

2. A very great anxiety with sickness and pain of the stomach attended with an excessive convulsive vomiting, which no medicine would scarce relieve. This appeared on the first or second day, but more commonly on the third when it was generally fatal, by bringing on hiccough, inflammation of the stomach and viscera, with a large discharge by vomit, of a black atrabilious matter like coffee grounds, mixed up with a bloody lymph, or coagulated blood; which frequently put a period to the patient's life, tho some recovered under this

symptom, by an early discharge of this black matter by stool.

3. The atrabilious humour, as Dr. Mitchell calls it, was highly acrid, yet not so viscid as that in Virginia, which gave it a more easy passage through the Biliary ducts, and being thereby more easily pumped up by the convulsive Reachings of the stomach, hence by its greater acrimony, it rendered this symptom



DR. JOHN KEARSLEY, SENIOR.

more violent and fatal, than it seems to have been in Virginia.

This conclusion is rather interesting in view of our present conception of the pathology of yellow fever and the pathologic physiology of its accompanying signs and symptoms.

In 1750 Dr. Adam Thompson published a paper "On the Preparation of the Body for the Small Pox." In this article, following the teaching of Boerhaave, Thompson urged the liberal use of mercury and antimony as a preparative measure. Whereupon Kearsley prepared a brochure entitled "A Letter to a Friend; Containing Remarks on a Discourse Proposing a Preparation of the Body for the

Small Pox; and the Manner of Receiving the Infection," which was published by B. Franklin and D. Hall in 1751. Introducing the subject, Kearsley criticizes the unnamed author (Dr. Thompson) for his lack of familiarity with the "Writings of the learned and experienced Physicians, xxx (whose) Rules of Practice in a Science," he caustically adds, "(may) not be prostituted to the vain Chimeras of a doubtful Hypothesis."

After this verbal thrust, Kearsley considers the separate elements in the preparation for the small pox. In his opinion special milk or vegetable diets are contraindicated because of the danger of the development of "an acid Acrimony, the immediate cause of Head-aches, Deliriums, Pleurisies, Peripneumonies, Ophthalmies, Tormina's of the Stomach and Bowels, and the worst kinds of inflammatory disorders." An argument formidable enough to convert the most confirmed vegetarian forsooth!

Dr. Kearsley can scarcely be accused of underestimating the dangers of decreased elimination through the skin, if the following statement be considered an estimate of his opinion on this question.

From hence the sensible and unsensible Perspiration, the gentle Breathings and benign Sweats, greatly conducive to the carrying off the variolous Effluvia, will be lessened, if not wholly suppressed; hence the Miasmata for want of the necessary Impetus of the circulating Fluids, will be inverted; And from hence it is those dire Symptoms afflicting the Brain and vital Parts do necessarily arise, which when attended with an acid Acrimony, the common Case of Children and young Persons, do frequently terminate in Inflammations, Gangrenes, putrid Fevers, Convulsions, Deliquiums, etc., which often resist the most powerful Remedies.

The admission of Kearsley that the "mild mercury" is a good preparative somewhat tempers his attack; however, he adds that the claims of its specificity are extravagant. He furthermore takes the strong position

that susceptibility is relative and that failure of certain exposed members of a family to take small pox after special preparation constitutes no argument for its efficacy. The use of "Catholic Bark" by Thompson for the treatment of sores succeeding inoculation elicits the sarcastic comment that this drug is "the common Refuge of Ignorance, which too many make use of in almost every Case, when they arrive at the Ne plus ultra of their Practice."

In this connection it is interesting to note that John Kearsley, Senior, was among the first physicians of Philadelphia to submit to inoculation against small pox. In a letter of Benjamin Franklin, 1731, it is stated that Zahcary, Cadwalader, the elder Shippen, Thomas Bond, Sommers and Kearsley were inoculated. An attack of small pox prevented Thomas Graeme, the port physician of that period, from sharing the distinction.

No trace can be found of an article, "The Case of Mr. T. (homas) L. (awrence) with regard to the Method pursued therein by J. (ohn) K. (earsley), Senior, Surgeon, with the Uncommon Treatment the said J. K. hath met with, in his Procedure therein," which appeared in Philadelphia in 1760. Doubtless, Packard is correct in judging it "some ancient piece of scandal, which it is just as well should be forgotten."

Prominent as was John Kearsley, Senior, in the medical world of his day, even more eminent position is accorded him in the history of Philadelphia by reason of his public services. He represented the city in the House of Assembly for several terms. So popular was he through his support of every measure for the public welfare before this body that he was frequently borne to his home on the shoulders of his admiring constituents. Furthermore he gained distinction as an architect, leaving to posterity an impressive historic landmark in old Christ Church, now tucked away in the incongruous, uncongenial mercantile district of Philadelphia. He has been erroneously

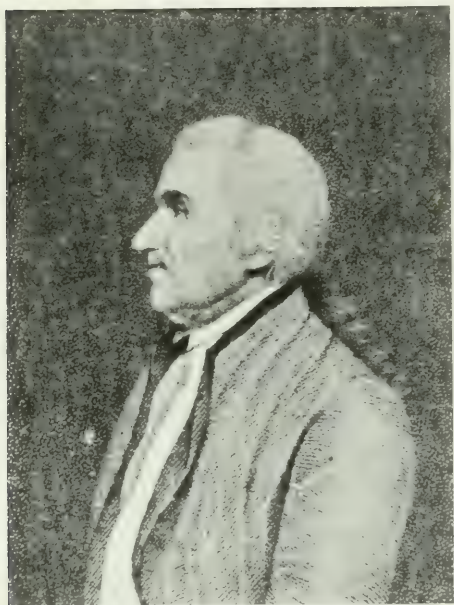
named as the designer of the State House (Independence Hall): but while he served on a building committee and submitted plans for this historic structure, disagreement as to the site and specifications led to his virtual withdrawal from any active interest in the project and to the acceptance of Andrew Hamilton's plan.



Christ Church, now tucked away in the incongruous, uncongenial mercantile district of Philadelphia.

Christ Church in its present dignified simplicity is an enduring monument to the indefatigable energy and architectural ability of Dr. John Kearsley, Senior. For fifty-three years he was active in its vestry. From August 11, 1720, when this body resolved to enlarge the church, to build a tower and to purchase bells, until its completion in 1747, he was the guiding spirit in its conception and construction. On May 4, 1721, Robert Assheton started the subscription book and some time later the

vestry requested Assheton and Kearsley to collect one-fourth of the subscribed amount with which to begin construction. However, no steps toward enlarging the place of worship were taken until April, 1727, when the vestry voted an immediate building plan. "Upon which, Dr. Kearsley, out of a hearty desire to have the said work



DR. JOHN BARD, a distinguished practitioner in New York.

begun, undertakes to set men a digging, in order to lay the foundation, and will disburse money for the same until subscriptions be made and collected for the said use." Furthermore he was named on the committee to solicit such funds. On April 27, 1727, the west end of the present building was under construction. Resolutions commending Kearsley for his judicious management of the building fund were adopted in 1730. However, on April 16, 1743, Dr. Kearsley petitioned an auditing of his accounts, charging ingratitude and calumny as sole rewards for his years of faithful service. Happily the appointed

committee reported that "we are of the opinion that the uniformity and beauty of the structure is greatly owing to the assiduity, care, pains and labour of him the said Doctor John Kearsley." As a measure of their esteem for the doctor the vestry on May 11, 1747 voted him a gift of silver plate to the value of forty pounds sterling.

The public conscience was more flexible in these pioneer days or perhaps the worthiness of a cause determined the righteousness of the means to attain it. At any rate, funds not being available for the purpose, on October 30, 1752, the vestry of Christ Church appointed a committee to conduct a lottery, the proceeds of which should be utilized for the erection of a steeple and the purchase of a "ring of eight bells." Among the more prominent members of this committee were Benjamin Franklin, Evan Morgan, the father of Dr. John Morgan, Jacob Duché, the faint hearted Chaplain of the First Continental Congress, and Dr. Kearsley.

Robert Smith contracted for the construction of the steeple in 1751 and it was completed in 1755 at a cost of more than three thousand pounds. It mounts one hundred and ninety-six feet nine inches from base to mitre. The largest ball is seven feet nine inches in circumference and could contain sixty gallons. Radiating from this central sphere to the four cardinal points of the compass are smaller balls, one foot ten inches in circumference, placed three feet ten inches apart. The weather vane is seven feet seven inches long and two feet two inches broad. The surmounting mitre is two feet six inches high and four feet in circumference. On this mitre are thirteen stars, one for each of the thirteen colonies.

The chimes weighed nine thousand pounds. Captain Budden transported them free of charge from London and in return for his courtesy merely stipulated that the arrival of his vessel in the port should there-

after be heralded by the tolling of the bells. Then, too, the individual who hung the bells gratuitously, requested that they be muffled in tolling his death. The vestry complied with both of these unusual requests. As might be anticipated, the novelty and quality of the chimes attracted people from considerable distances. Not only were they used to announce the devotional services of the Sabbath, but also on Tuesday and Friday nights to give notice of market on the following days, a custom which was preserved until 1871.

With the rapid growth of the colonial metropolis, a second Episcopal church was contemplated. On June 20, 1758, John Kearsley, Senior, was named on the committee to consider plans for the erection of a new church. Still standing, a solemn house of worship in the slums of a modern city, St. Peter's is so similar architecturally to its sister church as to leave no doubt as to its designer. Dr. Kearsley was on the committee which formally opened the church, August 13, 1761. The vestry and a notable assemblage of governors, legislators and ecclesiastics, on September 4, 1761, marched from Christ Church to St. Peter's, where in later years patriot and traitor* worshipped in adjoining pews.

Dr. Kearsley's civic interests were not confined to church matters. He was a liberal supporter of the Pennsylvania Hospital. Then, too, in 1747 he served on the Board of Managers of a lottery for strengthening the defences of the city against the depredations of French and Spanish privateers.

In January, 1772, at the ripe age of eighty-eight years, this "ancient, worthy and useful member of the church" died. Still in full possession of his faculties, he attended his extensive practice and other activities until a few weeks before his death. By his will a large portion of his estate was assigned to the establishment of a home to be known as "Christ Church Hospital"—"for the

*George Washington and Benedict Arnold.

support of ten or more poor or distressed women, of the communion of the Church of England, or such as the said corporation and their successors shall deem such; preferring clergymen's widows before others, and supplying them with meat, drink and lodging, and the assistance of persons practicing physics and surgery." Probably



A solemn house of worship in the slums of a modern city.

some unrecorded codicil or agreement between the interested parties made this provision active only on the death of his widow, since this fund became available on her decease, May 26, 1778. Supplemented by donations and bequests from Joseph Dobbins of South Carolina, the original Arch Street property used as a home was remodeled in 1785 and ultimately a new and adequate building was provided on Cherry Street in 1819.

Thus a life of usefulness in medical and civic affairs had left its stamp on the coming generations of Philadelphians through ener-

getic tutelage and preeminent example, and indeed on the very character of the city by notable contributions to its architecture and institutions.

Furthermore, the name, John Kearsley, was still borne by a brilliant nephew,



State House.

already prominent in the medical circles of Philadelphia. Of his antecedents little is known. The court records of Philadelphia show an identity of beneficiaries in Sedgfield, England, in the wills of both the nephew and uncle, with the omission of John from the former's list of brothers and sisters. The deduction, therefore, that John Kearsley, Junior, belonged to the Sedgfield Kearsleys is justifiable. It may be inferred that the younger John Kearsley came to America to share the good fortune of his uncle. He was a house pupil of Dr. John Kearsley, Senior; but no record is found of his receiving any portion of his medical education in England.

John Kearsley, Junior, had established an extensive practice and was universally respected prior to the dark days of the Revolution. In 1766 he joined John Morgan, Clarkson, Bayard, Harris and Glentworth to form the Philadelphia Medical Society, the first organization of the kind in Pennsylvania. His article on the epidemics of angina maligna of 1746 and 1760, which appeared in the *Gentleman's Magazine* of London in 1769, is said to have been the first American

medical contribution to a foreign journal. Among a series of papers collected by B. Coxe now in the files of the Library of the College of Physicians of Philadelphia is an article termed, "Observations on the Angina Maligna; or The Putrid and Ulcerous Sore Throat, with a Method of Treating it, By a lover of Pennsylvania, 1769 (Sent to American Magazine, June 16, 1769)." Aside from the subject matter, which identifies the author, a contemporaneously written table of contents names John Kearsley, Junior, as its writer.

The monograph is written in the grandiloquent style of that period. Kearsley believed the prevalence of angina maligna among children to result from the lack of solids and the "spongy habits" of their young bodies which predisposed to a reception of the "floating miasmata of a putrid atmosphere." Its epidemic sweep through the colonies "seemed, by its dire effects, to be more like the drawn sword of vengeance to stop the growth of the colonies, than the natural progress of a disease. In the New England governments, as their annals no doubt will show, the stroke was



The London Coffee House.

felt with great severity; villages were almost depopulated, and parents were left to bewail the loss of their tender offspring, till Heaven at last, the only unerring Physician, was pleased to check its baneful influence." Noah Webster has recorded

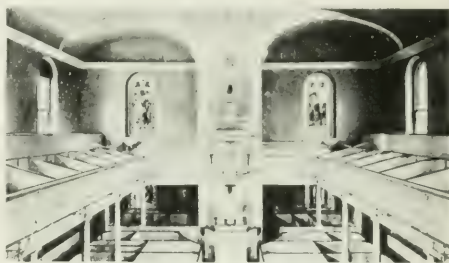
an epidemic of putrid sore throat in England at about this time and in his opinion a concomitant activity of Etna was significant.

The clinical picture is somewhat confused by the volubility of the author; but his descriptions of the tonsillar and faucial exudate, the nasal discharge, the suffocative symptoms and the clinical course follow closely the present conception of diphtheria. The following classical clinical description is worthy of preservation. "The breath threw forth a cavernous stench, and the eyes and nose discharg'd a dissolv'd ichorous matter, which even corroded the tender parts on which it trickled. Under these circumstances, the patient discovered great restlessness and anxiety with giddiness in the head, delirium and sometimes a stupor, which symptoms joined with a suffocatio stridula (the effects of a defluxion of acrid ichor on the lungs) on the fourth or fifth day, portended immediate death."

In Kearsley's opinion, venesection and purging are contraindicated in the treatment of this condition. Emetics, may, if

infusion of the bark acidulated with elixir vitrioli to prevent relapses, cold baths as a prophylactic and to hasten convalescence, black currant jelly to clear up tonsillar ulcers.

In his criticism of the common practice



Where patriot and traitor worshipped in adjoining pews.

of blood letting, Kearsley quotes almost prophetically from Dryden:

"Great wits to madness nearly are allied,
A thin partition does their bounds divide."

War clouds were settling over the rebellious colonies as England sought to impose her will on her offspring. The lines between patriots and supporters of the Crown were being more sharply drawn. Dr. John Kearsley, Junior, was staunch Tory nor was he reticent in his expressions of sympathy for King George. It was but natural that a man of his positive personality and strong convictions should early become embroiled; and the episode from "Hugh Wynne" related in the introduction to this sketch would indicate that the occasion was not long deferred.

In 1775 a prominent lawyer, Isaac Hunt, who had married a sister of Benjamin West's wife, defended a man accused of violating the resolves against the importation of British goods. His supercilious attitude toward the Committee led the associators to make an example of him on the next day.

In that quaint relic of Revolutionary times, the "Diary of Christopher Marshall,"



An impressive historic landmark. Old Christ Church

used early, be of some value in limiting the entrance of poisons into the blood. Polytherapy was in its heyday as is witnessed by his medical armamentarium; strong vinegar as a local application, inhalations of vinegar, wormwood, centaury, Virginia snake root, galangal, myrrh and honey,

under date of August 6, 1775, the events leading up to and succeeding Dr. Kearsley's entanglement in this affair are chronicled.

Between eleven and twelve this forenoon, about thirty of our associators waited upon and conducted Isaac Hunt from his dwelling to the Coffee House, where having placed him in a cart, he very politely acknowledged he had



DR. JOHN REDMAN (a rare photograph from the collection of the College of Physicians of Philadelphia).

said and acted wrong, for which he asked pardon of the public and committed himself to the protection of the associators, to defend him from any gross insults from the populace. This, his behavior, they approved him, and conducted him in that situation, with drum beating, through the principal streets, he acknowledging his misconduct in diverse places. But as they were coming down town, stopping at the corner where Dr. Kearsley lives, to make his declaration, it's said the Dr. threw open his window, snapped a pistol twice amongst the crowd, upon which they seized him, took his pistol, with another in his pocket from him, both of which were loaded with swan shot. In the scuffle, he got wounded in the hand. They then took Hunt out of the cart, conducted him safe home, put Kearsley in, brought him to (the) Coffee House, where persuasions were used to cause him to make concessions, but to no effect. They then, with drum beating, paraded the streets round the town, then took

him back to his house and left him there, but as the mob were prevented by the associators, who guarded him, from tarring and feathering, yet after the associators were gone, they then broke the windows and abused the house, etc.

Watson gives a somewhat more sympathetic version of the episode as related by Mr. Graydon, a bystander. Mention of Dr. Kearsley's unwarranted display of arms is omitted and the attack is attributed to his impetuous temper and rash expressions rather than to any immediate provocation. Continuing he states that Kearsley "was forced into a cart, and, amidst a multitude of boys and idlers, paraded through the streets to the time of the Rogue's March. The concourse brought him before the Coffee-house, where they halted; the doctor, foaming with rage and indignation, without a hat, his wig dishevelled, and himself bloody from his wounded hand, stood up in the cart and called for a bowl of punch; when so vehement was his thirst that he swallowed it ere he took it from his lips. 'I was shocked,' says Graydon, 'at the spectacle, thus to see a lately respected citizen so vilified.'"

However, evidence was not long lacking in proof of the Doctor's activities against the cause of independence. Intelligence reached Philadelphia on October 6, 1775 of the discovery of inflammatory letters on the person of Christopher Carter detained at Chester by the Committee of Safety. These letters were addressed in two parcels to Thomas Corbyn and Mrs. McCalla. Dr. Kearsley, James Brooks and Leonard Snowden, a Quaker brewer, were apprehended as the authors of these notes and confined to the State House under guard. Kearsley's letters called the whigs "a pack of cowards" and averred that he himself had made five thousand run by snapping a pistol at them. More pernicious, however, was his inclusion of a map of the Delaware channel and other important military information. As further precautionary measures

after his arrest, a seal was placed on the Doctor's desk and a guard over his door. The three military offenders were committed to prison on October 7th, as was their messenger, Christopher Carter, on his arrival from Chester. Two days later fifteen members from the General Committee sat with the Committee of Safety in judgment over these four prisoners who were escorted from the State House to the Lodge Room by a guard of fifty associators with fire and drums. Christopher Marshall noted on October 24, 1775 that "near six this morning, Dr. Kearsley and James Brooks, under a guard of eight of the Light Horse, left this City for the different jails allotted them in this Province."

Apparently, Dr. Kearsley was first sent to Lancaster; but the following order from the Council of Safety recorded in the Pennsylvania Archives, Second Series, would indicate that the curb in that city must have been rather loose and that a change of prisons was deemed advisable.

"In Council of Safety (at Philadelphia)
October 31, 1776.

The Council having understood that Doctor Kearsley has insinuated himself in the good Graces of a number of your Inhabitants and that they have applied for his enlargement, in order to attend them as a physician, The Board considering him as a dangerous Enemy to the American States, think it would be very imprudent to Enlarge him, as He may avail himself of such an opportunity in order to mislead weak and credulous persons, and thereby endanger the publick Cause.

"You are therefore desired, on the receipt of this, to remove the said Doct'r Kearsley to Carlisle, and commit to the Care of the prison Keeper of s'd Town, under the Direction of the Committee of the County of Cumberland.

Dr. Kearsley suffered from a mental derangement after his apprehension. His traitorous correspondence even while under surveillance constitutes evidence of a continuance of this psychosis. Death early

terminated his unfortunate career. On November 17, 1777, Christopher Marshall recorded that "Dr. Kearsley, prisoner at Carlisle, died there some time last week, and was buried in their church, which disgusted many of the Church party in that place, so that they declared against going to that church any more." However, no other record of their disapprobation is found nor is there a marker of his grave in the old churchyard at Carlisle.

Dr. John Kearsley, Junior, was survived by his widow, Mary, and five children, John, Mary, Joseph, Harriet and Elizabeth, who with his brothers and sisters in Sedgfield, England, were named as his beneficiaries in a will probated June 12, 1786.

Of the younger Kearsley's professional ability and personal courage there can be no doubt. Loyalty to the Crown outweighed all ties of association and friendship in the land of his adoption. Rash public expressions, rank Toryism and actual traitorous dealing with the enemy were his undoing and led to his apprehension and confinement in prison. His was an intense nature and it is little wonder that he gave way under the mental strain of his experiences. The unfortunate termination of the career of this brilliant "Tory doctor," as history will always term him, constituted the first tragedy of the Revolution in the medical circles of Philadelphia.*

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ON WIT

TRUE Wit is a compound or just mixture of Seriousness and Laughter (that is) it is Knowledge expressed by Thought to our self, Words, or Actions, in such a manner, whereby a Man is justly moved to pleasantness, smiling, or laughter according to the degree of Wit. Thus Ovid, Virgil, and Horace were adjudged very Witty, because they expressed the Knowledge of many things in Rithme or Verse, in such a manner that moved a Reader either to Laughter, Smiling, or Pleasantness, which last I take to be the lowest degree of risibility, and proceeds from a Titulation of the Mind; which if much Titulated, she breaks into Smiling, and if very much, then bursts into Laughter. A Fool may be moved (but not justly, or for any true reason) to laughter by what seems to him Witty; which perhaps to a Man of Sense doth not appear in any reason to be Witty, and consequently will not move him to Laughter, or the least pleasantness, whereas a Fool may be moved by it to

Laugh, until he lies down. Since I am casually fallen upon this subject, I would inquire, what is the contrary to Wit. It cannot be a no Wit, because they are contradictories; neither can it be Folly, because there are many Witty Fools (and Fools are oft called Wits, because they move others to Laughter) and Witty Divels: Then it must be that which destroys Laughter and Pleasantness; which is, sadness of Thought, Words, or Actions, that are so far from moving to Laughter, Smiling, or Pleasantness, that they cause the contrary; and yet the relation of a dismal melancholic Story, may be so couch't that it appears Witty, or moving to Pleasantness or Laughter; but that doth not proceed from the subject itself, but from the accidental placing of the Words, or Sense of 'em in such a manner, that they may be Witty and move to a Smile.—From *Vanities of Philosophy and Physick*, by Gideon Harvey, M.D.

THE PSYCHOLOGY OF MEDICAL SATIRE

By ISADOR H. CORIAT, M.D.

BOSTON, MASS.

SO far as could be determined, no attempt has been made to investigate the psychological mechanisms and determinants of medical satire. With the idea of a psychological interpretation in mind, a study was made of the marvelous collection of medical wit in Dr. Eugen Holländer's "Die Karikatur und Satire in der Medizin." Many of the examples and references cited are taken from that thorough and encyclopedic work, in which is illustrated the history of medical caricature and satire from the most ancient sources up to contemporary illustration, both from the purely medical and medicopolitical standpoints. Of course, only a few of the salient points can be discussed; for further details the original work with its many plates and illustrations should be consulted.

Medicine and physicians have been the subjects of satire from the earliest antiquity up to the present. The ancient dramatists, particularly the Roman dramatists, were fond of hurling their shots of wit at the doctors. Shakespeare occasionally mercilessly exposes the medical foibles of his time, while several of Molière's comedies are directed definitely against the medical profession. Dr. Sangrado in Le Sage's "Gil Blas" is a symbol of the mental epidemic of bloodletting so frequent in the Middle Ages. Montaigne in his "Essays," particularly in the essay on the "Resemblance between Children and Fathers"¹ discourses at length about the medical profession and medical learning of his time and what he satirically terms "the secret ceremonies of Aesculapius."

Among contemporary writers, the best

known of medical satirists is Bernard Shaw. "The Doctor's Dilemma" discloses a very clever psychological mechanism, for here Shaw, by releasing his own repressions, transfers the release to others and so produces laughter. This is particularly well seen in the brilliant line uttered by one of the doctors after the artist's death—"After life's fitful fever, he sleeps well"—a beautiful example of a classical condensation from "Macbeth" and a medical technicality. Here, to use Bergson's² vivid description, there is "a repressed feeling which goes off like a spring."

As medicine is the saddest of arts, so medical humor may be termed sort of a defence reaction. The Death Dance caricatures of the Middle Ages are symbolic of a humorous defence or cover-reaction against death. Some of these caricatures reach the point of becoming broadly farcical, such as those from the "Nuremberg Book of Chronicles in 1493."³ As one writer on medical satire states⁴: "We physicians live in the complaints and sufferings of our fellow creatures. Aesculapius is a serious combatant and his best strength is spent in the ring with Death." This so-called "grim humor" (*Galgenhumor*) is very characteristic of medical wit and satire, because it is produced at the expense of overcoming deep resistances and repressions concerning illness and death and the constant struggles against these unforeseen and unavoidable accidents of human life. In this ambivalent tendency of medical satire, sadness is compensated or concealed by the attempts

² Bergson, H. Laughter.

³ See Fig. 19 in Holländer.

⁴ Dr. Serenus (Dr. Steckel). Aesculap als Harlekin-Humor, Satire und Phantasie aus der Praxis, 1911.

¹ Book II, Chap. xxxvii.

at making it less painful, in the form of humor or a joke, or in a literary work, in the form of a comedy.

Illustrative of the same trend, it is pointed out by Weber⁵ that "skulls and skeletons tend to lose their horror in grotesque art . . . It is probable that in old morality plays of the 'Dance of Death' type, the actors, in tight fitting black dress with white skeleton painted on it, often gave a rather boisterous, seriocomic element to the performance."

The satire of Molière against doctors and the state of medical knowledge of his time, was a sort of compensation for his own incurable malady and also probably due to the fact that his son and an intimate friend had died from the effects of the administration of antimony. In "Le Médecin Malgré Lui," the first introduction of Sganarelle as the mock doctor, shows Molière's attitude towards physicians.

Sganarelle. "Hippocrates says that we shall both keep on our hats."

Geronte. "Hippocrates says that?"

Sganarelle. "Yes."

Geronte. "In which chapter, if you please?"

Sganarelle. "In his chapter . . . on hats."

Geronte. "Since Hippocrates says so, we must obey."

As stated by Brown:⁶ "It (comedy) had done good service in satirizing the fallacies of physic when Rome was a Republic. It was perhaps the last of all sources whence danger was to be expected. The lurking spirit of antagonism that survived the classics, passing from age to age in the medieval burlesque and tirades of *médicins ambulants* of later date, was as far beneath the notice of the faculty as the Passion Play profanities were unworthy the attention of the Holy See."

⁵ Weber, Frederick Parkes. *Aspects of Death and Correlated Aspects of Life in Art, Epigram and Poetry*. Third Edition, 1918.

⁶ Brown, A. M. *Molière and His Medical Associations*. London, 1897.

Symbolic satire referring to outstanding political events is very expressive, because, as in a dream, the repressed wish is fulfilled and is projected in artistic form into something really biting.⁷ Of course if a medical truth is fundamentally established, no amount of satire or caricature can destroy it. The Don Quixote of medical satire is ineffective in his campaign against truth. As an example, there can be cited the Anti-Vaccine Society⁸ in their efforts to exaggerate the alleged ill effects of vaccination. This caricature shows an interesting type of primitive thinking in the partial metamorphosis of the vaccinated individuals into cows. This may be compared to the customs of certain savages who avoid eating particular animals and plants lest they should acquire the undesirable qualities with which they believe them to be infected. Such food taboos are based on what Frazer terms homeopathic magic and are widely spread among primitive tribes.⁹ In fact, it is interesting to note, as showing the real motives or mechanism producing medical satire, that patients under analysis, as a sign of their unconscious resistance, will often have dreams in which the physician is satirized or caricatured. This unconscious satire is produced by the removal of the conscious social inhibitions. What medical satire does consciously, is thus found already deposited in the unconscious.

Sometimes the effect of satirizing, by exposing certain foibles to ridicule, may accelerate scientific medical research, as the

⁷ Henderson, Ernest P. *Symbol and Satire in the French Revolution, 1912*.

⁸ See the caricature "The Cow Pock or the Wonderful Effect of the New Inoculation" by James Gilray, London, 1802. The figure with the scarifier represents Jenner. All the vaccinated individuals are represented as being slowly metamorphosed into cows, a sort of dreamlike displacement and exaggeration or over-determination. (Colored plate reproduced in Holländer.)

⁹ Frazer. *The Golden Bough*. Vol. I. *The Magic Art*, pp. 117-118.

satirizing of phrenology paved the way for exact physiological research on cerebral localization. For instance along these lines, see in Holländer the "London Caricature on Dr. Gall" (Fig. 186) or the caricature on the "Compression Cap" (Fig. 190) or still better, the "Explanation by the Physiological System of the Brain according to Drs. Gall and Spurzheim" (Fig. 193). Consequently it seems that satire may be constructive in its effects as well as destructive.

Psychoanalytic investigation has pointed out that a lack of the sense of humor can probably be attributed, in the greatest part, to a strong repression of the exhibitionistic impulse. Freud¹⁰ has shown that the release of this exhibitionistic impulse from the repressions imposed upon it by the social codes of behavior, is of the greatest importance in the development of humor. There is a liberation of pleasure from sources that have undergone repression and "the main character of wit making is to set free pleasure by removing inhibitions. Wit makes possible the gratification of a lewd, hostile craving, despite the hindrance which stands in the way; it eludes the hindrance and so derives pleasure from a source that has become inaccessible on account of the hindrance." This hindrance, according to Freud, is nothing but the repression employed by the higher degree of culture and education to prevent these unconscious motives from forcing an outlet into the conscious thinking.

Our hostile impulses toward our fellow beings, which are shown by satire, are subject to the same restrictions and same progressive repressions as sexual strivings. The removal of the repression of hostile tendencies may become aggression, satire or defence, while the removal of the repression of obscene or sexual tendencies may produce exhibitionism.

It is in medical satire that we find the

¹⁰ Freud. Wit and the Unconscious.

most exquisite examples of this kind of humor, that is, the aggressive or critical satire and the strong emphasis placed upon the sexual element, sometimes coarsely, sometimes as a delicately veiled joke, depending on the degree of repression of the creator of the satire and on the development of the secondary elaboration.¹¹ It is rather difficult to explain this tendency, except perhaps that the physician and satirist of medical subjects unconsciously feel that the erotic can be emphasized, even rather broadly and obscenely, without shocking the public morals, because of the peculiar relations of the physician to society and to the fact that society tolerates less sexual repression in speaking of strictly medical subjects. Of course the veiled erotic satire is the source of more enjoyment than the unveiled, because, in the latter no repressions enter in, and the joke is rendered unacceptable through its literal coarseness and rejected by all the means at the disposal of the mind.

This is clearly seen in the field of medicine in certain typical hermaphroditic statues such as a female body with male genitals, a woman with a beard or a man with female genitals carrying a phallic symbol.¹² Such satiric symbolizations result from the outward projection in artistic form, of the fusion or condensation in the unconscious, of the bisexual elements in man, in much the same manner as the hermaphroditic figures occurring in the dreams of homosexuals.¹³ Bloch¹⁴ says: "How readily every

¹¹ See at this point the broad erotic symbolism without any attempt at concealment in Flemish sculpture in the article *La Satire, le Fantastique et la Licence dans la Sculpture Flamande*, by R. Leconteur. *Aesculape*, February, 1913, iii.

¹² Dr. Berillion. *Le Baphomet-L'Idole Androgyne des Templiers*. *Aesculape*, February, 1913, iii.

¹³ Coriat, Isador H. *Hermaphroditic Dreams*. *Psychoanalyt. Rev.*, October, 1917. See also Carpenter's *Intermediate Types among Primitive Folks*.

¹⁴ Bloch, Iwan. *The Sexual Life of Our Time*. New York, 1920.

sexual element lends itself to the humorous point of view. Sexual matters actually promote humor. For this reason, as Edward Fuchs rightly insists in 'The Erotic Element in Caricature,' the majority of all erotic creations are of the nature of caricature. The most brilliant advocate of this humorous view of sexual matters is the distinguished English artist Thomas Rowlandson, whose works both in England and in Germany have long been kept under lock and key." Evidently Thomas Rowlandson's talent extended into fields of medical caricature, for Holländer reproduces a number of this artist's drawings dealing with exclusive medical subjects, particularly from the standpoint of the coarse and grotesque.

This release of repressed sexual complexes applies to other types of humor and satire in addition to the medical, although it is in the latter that it seems most clearly revealed. It is stated by one writer¹⁵ that "the most universal matter of laughter nature supplies (is) the laughter of sex. Fully nine tenths of the witticisms of daily life, and more than half the wit of literature play on sex. Sex is laughable because social life requires that it be hidden, set aside, submerged: while the natural endowment of man impels the instinct to raise its head out of darkness, to peer into the light of day."

Obstetrical or sexual subjects are very prominent in medical satire as shown in the various designations referring to the sexual, obstetrical or excremental organs, functions or material. In this type of humor, because of the peculiar nature of medical knowledge and its frankness in discussing these subjects, social repressions and prudishness are easily removed. An extreme example of this kind of broad and literal anal-erotic humor is seen in the works of the physician Francois Rabelais, particularly in Chapter XI of *Gargantua*, relating to his "youthful age" and again in Chapter

XIII, in which is detailed Gargantua's "wonderful understanding."

Medical wit or satire often guards and stands as a censor against the invasion of the conscious by deep sorrow. This dream-like reversal of the actual situation, this displacement for the purpose of exciting laughter of the entire subject to be satirized, (in fact the entire satire is based upon the displacement or reversal) is seen in the two cartoons reproduced by Holländer. In the first figure (251) there is depicted a group of monkeys riding in a sort of combination of a bath tube and a hobby horse, entitled "The Chorus of the Monkeys—Thanks to Metchnikoff we also are syphilitic." A similar situation is seen in an anti-vivisection cartoon (Fig. 244). Here a man, evidently a scientist, is bound to a table; his expression is one of combined horror and pity and he is surrounded by students and professors from the animal world, such as dogs, rabbits, frogs, etc. The rabbits about to vivisect the man state to the audience of animals in the amphitheater: "No false sentiment. The principle of free research is, this man must be vivisected for the health of the entire animal world."

The laughter induced acts as a discharge or release from this repressed psychic energy. Behind all this satire is also the impulse, strongly repressed and highly symbolized it is true, comparable to the impulse toward sexual exhibitionism. Thus all wit and satire has a double motive, what Freud cleverly refers to as its "Janus-like doublefacedness." A great deal of medical wit is childlike in its construction in the same way that we laugh at clowns because their actions are immoderate and show excessive expenditure of action, like the behavior of a child; but in these cases the element of surprise enters in—that an adult should produce such infantile behavior. This is well seen in the cartoon entitled "The Medical Consultation" by Boilly. (Frontispiece to Holländer.)

¹⁵ Kallen, H. M. *The Esthetic Principle in Comedy*. *Am. J. Psychol.*, April, 1911.

Outside of the witty allusions in Shakespeare and the broad and almost farcical medical satire in Le Sage's "Gil Blas," in Molière and Bernard Shaw, wit may have two tendencies: either hostile, serving as aggression, satire, or defense, or as obscene wit, serving as a form of sexual exhibitionism. However, the latter form may be subtle and have a double meaning or may portray a clear and outspoken one. These two wit tendencies are found in an exquisite form in medical satire, for the reasons that the aggression or defense may be hostile and cruel and utilize repressed sadistic components, or it may be a sort of a defense or cover because medicine is the saddest of the arts—it deals with illness and often death. Hence the humor of the Death Dance in medieval art. Thus medical humor becomes a sort of a defense reaction.

As definite examples of the erotic subtlety of medical satire, we can refer to the following examples in Holländer. In an old Greek terra cotta of a pregnant hermaphrodite (Fig. 8) there is portrayed a bisexual symbol with the emphasis on the heterosexual, something like the sexual symbol of the Cretan Snake Goddess.¹⁶ The same situation is portrayed, as an hermaphroditic drawing, by the "Man Mid Wife" (Fig. 166). Sometimes the humor reaches a broad vulgarity without any effort at repression, as in the figure of the defecating children which forms one of the initial letters of Vesalius' "Anatomy" (Fig. 33).

In "Time, the Best Doctor" (Fig. 111) the sexual is broadly emphasized, the laughable situation being in the errors of diagnosis of pregnancy probably recognized by all the consultants, but only one is bold

enough to tell the truth and then only in the form of a pun. The erotic is also shown in "Dr. Blowbladder Discovers Perpetual Motion" (Plate VII), and in "Dr. Double-dose Killing Two Birds With One Stone" (Fig. 126). A satire on animal magnetism (Plate IX) is frankly sexual, representing a goat hypnotizing a female lamb. The goat from earliest antiquity has been a symbol of the male generative power.¹⁷

In a cartoon by George Prince entitled "Medical Mushrooms" (Fig. 168), the coats of arms of the knighted physicians take the form in one case, of a child in utero with obstetrical forceps above, and in another case, of artistically arranged urinals with a catheter above.

Thus in medical humor, where physicians or new medical discoveries are satirized, there is always an exaggeration or displacement of the actual situation or idea to be ridiculed. Sometimes, too, the laughter is merely a cover for the more deeply seated sorrow that is portrayed, while in other cases, the license of expression allowable to medical subjects or advice, is seen in the erotic nature of medical satire when dealing with subjects relating to the sexual or excrementary organs or functions. Many of the same mental mechanisms apply to all satire, but it is preeminently in satire directed towards medical subjects, that these mechanisms are found in their clearest and most definite form. The exaggeration and rigidity of certain situations in wit, satire and caricature, as claimed by Bergson, explains only the superficial sources. For the deeper mechanism, the theory of Freud must be utilized, namely, that laughter is produced by the sudden release and condensation of repressed and socially forbidden impulses.

¹⁶ Coriat, Isador H. The Sexual Symbolism of the Cretan Snake Goddess. *Psychoanalyt. Rev.*, July, 1917.

¹⁷ Knight, Richard Payne. *The Symbolic Language of Ancient Art and Mythology*, 1876.



EDITORIALS

LE CADUCÉE

WE have on several occasions, in these columns, directed attention to the presentation on the French stage of plays dealing with the medical profession. "La Nouvelle Idole" and "Pasteur" both attained great popularity with the theatre-going public.

On February 5, 1921, at the Théâtre de la Renaissance, "Le Caducée," by André Pascal, was presented for the first time.

André Pascal is the nom de plume of Baron Henri de Rothschild, of the famous family of bankers and philanthropists. It is by no means his first essay in playwriting, as many plays from his pen have already won him success and fame as a dramatist. In his youth he studied medicine. This play indicates that he is familiar with many of the aspects of medical life, and has been a close observer of the profession.

"Le Caducée" presents as its center figure a miserable charlatan, who attains notoriety by means which excite the contempt of the honest members of his profession.

He is contrasted with a fine type of French physician and teacher, and with a former fellow student who has become a hardworking, honest physician in a provincial town. The play bears hard on a type of man who unfortunately is sometimes found in the ranks of the profession, and reveals an uncanny knowledge of the seamy side of the medical world; but it also illustrates the fate which is meted such rascals by the profession of which they constitute an unworthy minority.

The play opens in the magnificently furnished office of Doctor Revard. The walls are adorned with pictures of great value and the furniture is most expensive. The doctor is just showing out a patient who has been so much impressed that he

pays him a double fee. As he leaves, Doctor Durieux, a former classmate of Revard's, enters. They greet one another warmly as old friends. Durieux practices in a little town in Brittany, whence he has brought a rich woman to Paris to see Professor Godfroy, a famous surgeon, in consultation.

Revard asks him why, instead of taking the patient to Godfroy, he has not brought her to him, speaking disparagingly of Godfroy as an old conservative. Durieux replies that he really was not aware that Revard had attained sufficient eminence to be regarded as a consulting surgeon; when they had parted Revard was seeking to obtain a hospital position; had he obtained it? Revard in reply tells him that, after trying in vain to obtain position and reputation by the recognized slow pathway to professional success, he had given up such aspirations and had now succeeded. He declares that positions in the medical schools and colleges are only awarded by favoritism and corruption, and that, as the Parisian public no longer recognizes any sacrosanct property in diplomas and titles, they have lost their value.

Revard's own success dates from his attendance on a young woman of wealth and fashion who had been injured by an automobile. He had witnessed the accident, brought her home, treated her injuries, cured her, and had become the vaunted medical attendant of her family, who had sung his praises so effectively that his practice had grown by leaps and bounds.

The patient's uncle, Leroux, brought a Comtesse d'Orsant to Revard. He operated on her with success and as a result her friends have flocked to him as a miracle worker.

While they are conversing, Revard's

secretary brings him a letter from a doctor concerning a Roumanian lady whom he had seen in consultation with him. Revard coolly tells the secretary to tell the doctor that he will demand 6,000 francs for himself for the operation, and will allow him 50 per cent commission on the fee, and 30 per cent on all future cases. Durieux is shocked at the cynicism with which his quondam friend calmly tells him that he is a fee divider. Durieux tells him that he is perfecting a serum which, if successful, will enable him also to live in luxury. He intends completing his laboratory work under Professor Couturier. Revard tells him not to think of going to Couturier's laboratory but to come to his in his *maison de santé*. Durieux, dazzled by the offer, accepts with alacrity.

After Durieux has left Leroux enters, accompanied by a Madame Cordier. Leroux is an usurer, the woman a dealer in antiques. He has advanced money to Revard and she has furnished the offices. His patients, among them rich Americans, struck with admiration of the beautiful antique furniture and pictures, purchase various articles among them from her at stupendous prices, she replacing them as they are taken. Leroux tells Revard that he is going to demand 600,000 francs from him. Revard is thunderstruck. Leroux recalls to him how much he has aided him, not only by lending him money, but by advertising him in various ways. The interview is interrupted by the Comtesse d'Orsant, who has brought a young American woman to consult him. The Comtesse is in love with Revard and willingly aids in all his schemes. Young Mrs. Watson, the American woman, is the wife of the "Roi des Ascenseurs," the "Elevator King." Her mother has been remarried to the Marquis d'Avranches. Mrs. Watson is a neurasthenic hypochondriac. She also loses her heart to Revard, who soon gains complete control over her.

The tragedy comes when Revard performs a totally unnecessary operation on Mrs.

Watson and she dies of a postoperative hemorrhage in his *maison de santé*.

There is a heartrending act in which Mrs. Watson's family come to the house where she is dying and endeavor to see her. Revard is preparing with his assistants to reopen the abdomen to stop the hemorrhage, but the nurse announces her death. The assistant denounces his chief, and Professor Godfroy, summoned by her family, tells Revard that steps have been taken to prosecute him.

Revard, stricken with remorse, commits suicide by injecting Durieux's serum, and dies in the latter's arms.

The charlatan and quack has been portrayed many times on the stage but never with the vivid realism with which he is here depicted. The author mercilessly and with grim honesty shows us all the evil of his soul. Most quacks who have figured on the stage or in literature, from the creations of Le Sage and Molière to the author of the "Autobiography" which was edited by Weir Mitchell, have presented some humorous aspects, but Revard's career is tragic to him and his victims throughout. He is a man of intellect, but destitute of morals.

Montaigne says that the reason people are so easily deceived in religious and medical matters is because there is so much ignorance concerning them. Revard takes advantage of this ignorance, as prevalent among the rich and high-placed as among the so-called lower classes. He is a villain on the order of Milton's Satan, full of brains and intelligence but absolutely bent on evil. The magnitude of his iniquity inspires a sort of awe. The play should be seen or read by every medical man. As to its effects on the lay audience it would be hard to say whether good or evil would predominate, whether it would not create unjust suspicions of the medical profession in general, or whether it would stimulate their appreciation of the difference between the quack and the honest man.

FRANCIS R. PACKARD.



BOOK REVIEWS

TWO DISCOURSES DEALING WITH MEDICAL EDUCATION IN EARLY NEW YORK. By Samuel Bard, M.D., Professor of the Practice of Medicine in King's College; Later President of the College of Physicians and Surgeons. New York, Columbia University Press, 1921.

In this little volume are reproduced in facsimile two most interesting addresses by one of the most eminent of the founders of medicine in this country. Their author, Samuel Bard, was the son of another famous colonial physician, Dr. John Bard. Like his great contemporaries Morgan, Shippen and Rush he had realized the necessity of a thorough medical education and the impossibility of obtaining it in the colonies. He had therefore studied at Edinburgh and received his medical degree from that University to which so many of the pioneers in American medical education owed their training. The medical school of the College of Philadelphia, as the University of Pennsylvania was then known, graduated the first class in medicine in this country in 1768, and one year later Dr. Bard delivered the first of these addresses at the graduation exercises of the first class in medicine at King's College. The second address was delivered under very different auspices. King's College had become Columbia, and the medical department of the colonial institution had become the College of Physicians and Surgeons of the State of New York. Dr. Bard had lived through the vicissitudes attending the birth of the United States and coincidentally had aided in and seen the development of the embryo medical school into a great educational institution capable of providing a thorough training in medicine. He was twenty-seven years old when he delivered

the address to its first graduates and he was seventy-seven years old when he spoke to the class of 1819. In the earlier address he was chiefly concerned with an appeal for the foundation of a hospital, which would not only relieve the sick but would provide means for the better training of those who cared for them. In the later address he could point to the accomplishment of the hope expressed fifty years before and devote his energies to an exposition of the best ways in which the student could profit by the opportunities now afforded him. Two years later Samuel Bard was gathered to his fathers. By the republication of these addresses the great institution, for whose foundation he did so much, has paid a graceful tribute to his memory.

FRANCIS R. PACKARD.

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY (Legislative and Administrative History) DURING THE PERIOD OF THE REVOLUTION (1776-1786). Compiled and Edited by COLONEL WILLIAM O. OWEN, U. S. ARMY, Curator Army Medical Museum, Washington, D. C. Paul B. Hoeber, New York, 1920. 12 mo. Cloth, pp. 226, 4 Illus., Price \$3.00.

Colonel Owen has done a valuable piece of work in painstakingly digging out of the journals of each Provincial Congress of the Colony of Massachusetts Bay and from the twenty odd volumes of the *Journal of the Continental Congress*, those sections that bear on all matters medical in connection with the Revolutionary and Pre-Revolutionary Period. One who has not read the collected record can have no idea of the confusion that prevailed in the early days of the War, and with what punctiliousness and parsimony the Continental Con-

gress supervised the medical work of the Army. Attention was given to most trivial matters that ought to have been left to the Heads of the Army, or to the Director General of the "Hospital," as the medical department was then called. And yet one cannot wonder that every little detail was watched by the representatives of a people unaccustomed to providing for large armies and compelled to make a limited treasury meet the ever pressing needs. It is another illustration of the intensity of feeling, and of the great sense of responsibility felt by the men of the Revolution.

It seems that the first Army Medical Examination Board, of which there is any record, is mentioned in the *Journal of the Provincial Congress of Massachusetts Bay, 1775*, the paragraph stating that on May 8, 1775, this Congress

Ordered, That the President pro tempore, Doct. Church, Doct. Taylor, Doct. Helten and Doct. Dunsmore, be a committee to examine such persons as are, or may be, recommended for surgeons for the army now forming in this colony,

Resolved, That the persons recommended by the commanding officers of the several regiments, be appointed as surgeons to their respective regiments provided they appear to be duly qualified upon examination.

On the day appointed, sixteen medical candidates presented themselves for the examination which lasted four hours and comprised anatomy, physiology, surgery and medicine. Ten qualified, six failed. Thacher (*Military Journal, 1775-1783*) writes:

On the day appointed the medical candidates, sixteen in number, were summoned before the board for examination. This business occupied about four hours; the subjects were anatomy, physiology, surgery and medicine. It was not long after, that I was happily relieved from suspense, by receiving the sanction and acceptance of the board, with some acceptable instructions relative to the faithful discharge of

duty, and the humane treatment of those soldiers who may have the misfortune to require my assistance. Six of our number were privately rejected as being found unqualified. The examination was in a considerable degree close and severe, which occasioned not a little agitation in our ranks. But it was on another occasion, as I am told, that a candidate under examination was agitated into a state of perspiration and being required to describe the mode of treatment in rheumatism, among other remedies said that he would promote a sweat, and being asked how he would effect this with his patient, after some hesitation he replied, "I would have him examined by a medical committee."

It is not surprising that Massachusetts took the lead in matters medical since, as J. S. Taylor points out, of the Provincial Congress of Massachusetts Bay, twenty-two members belonged to the medical profession.

The actual history of the Medical Department of the United States Army begins with the appointment of Dr. Benj. Church of Massachusetts as Director General and Chief Physician of the First Army Hospital at a salary of four dollars a day. After a great reduction of the Army in 1783 at the close of the War, the act of June 2, 1784 practically disbanded the United States Army. No real Army existed for several years; Congress providing for the protection of the North Western frontiers and other localities by the creation of a sort of Militia, later called Legion and headed by Major Anthony Wayne, with Richard Allison as "Surgeon to the Legion."

In 1799, at the earnest request of Washington, James Craik of Virginia was appointed Physician General to both the Army and the Navy.

On March 3, 1813, in the middle of the War, the office of Physician and Surgeon General was created, James Tilton of Delaware receiving the first appointment. From that time dates the history of the Medical Corps of the United States Army as we now know it.

The records culled by Colonel Owen reveal the treasonable acts of Dr. Church, the appointment of John Morgan as his successor, and Morgan's dismissal because, as the Medical Committee reported August 6, 1777,

The general complaints of persons of all ranks in the army, and not any particular charges against him, together with the critical state of affairs at that time, rendered it necessary for the public good and the safety of the United States that he should be displaced; that the doctor's memorial appears to your committee to be a hasty and intemperate production; notwithstanding which, as he conceives himself injured, and requests an enquiry into his conduct, your committee are of the opinion that he ought to be heard, and that a committee of Congress should be appointed for that purpose.

The records further show that Shippen was appointed in Morgan's place in April, 1777, by a unanimous vote of the thirteen colonies, and give Morgan's accusation in June, 1779, against Shippen for malpractices and misconduct in office, Morgan declaring his readiness to give before the proper court having jurisdiction the "necessary evidence in the premises against the said Dr. William Shippen." Among the many details with which the Medical Committee of Congress concerned itself was inoculation against smallpox, it being ordered on Feb. 12, 1776, "that the medical Committee write to General Washington, and consult him on the propriety and expediency of causing such of the troops in his Army, as have not had the smallpox, to be inoculated, and recommended that

measure to him, if it can be done consistent with the public safety, and good of the service."

As an illustration of the dosage of drugs customary during the Revolution, the following minutes may be cited:

At a Board of War, 20th Feb., 1777. Agreed to report to Congress: . . .

That the Assembly of the State of Maryland be requested to deliver to Doctor McKensie so much Medicines of the following Denominations as he shall want and they can spare, to enable him to inoculate the Continental Troops in this Town, in the following Proportions for one hundred Men.

Six ounces Calomel
Two Pounds Jallop
Three Pounds Nitre
Elix Vitriol
One Pound Peruvian Bark
One Pound Snake Root.

The amount of calomel ordered for one hundred men is 2880 grains.

The human touch appears in a Minute adopted by the Congress on April 8, 1777, to the effect

That the eldest son of General Warren, and the youngest son of General Mercer, be educated from this time at the expense of the United States.

Although primarily of interest to the Medical Officers of the Army, the compilation by Colonel Owen of the scattered records of the Medical History of the Revolution is at the same time a valuable contribution to the General Medical History of this country.

DAVID RIESMAN.

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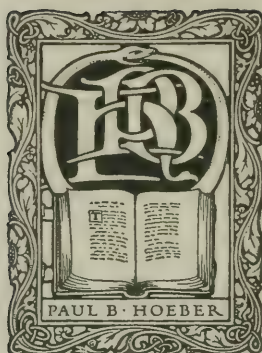
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